United States
Department of
Agriculture

Forest
Service

**Northern
Region**

Report No. **7**

Cultural Resources

An Historical and Archaeological Survey of the Hoodoo Mining District, Idaho

by

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AN HISTORICAL AND ARCHAEOLOGICAL SURVEY OF THE HOODOO MINING DISTRICT, IDAHO

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1982?

ABSTRACT

The Hoodoo Mining District of northeastern Latah County has not been studied as an entity either historically or archaeologically. Since new efforts at commercial logging in this area threaten many of these placer mining sites, there is an immediate need to understand the history of the Hoodoo district and identify the significant structural remains of the era. To do so, this thesis uses a regional research design based on the social and administrative organization that was known as a mining district.

While never a stampede-type goldfield, the Hoodoo district is shown to have been of considerable importance, especially in the earlier settlement periods, to the developing economy of the Palouse River valley. The people of Palouse, Washington were the direct beneficiaries of the currency and trade generated from the periodic rushes to the North Fork Palouse River.

The placer mines were primarily worked by small associations of men, especially since the mineral potential seldom warranted major capital investment. This is born out archaeologically as well, with the complex of ditches, dams, and ground sluices discovered. Additionally, the variety in form and spatial relationships of the structures in any one type of mine shows that there was considerable individual ingenuity applicable to the relatively simple mining technology. One of the most important conclusions from this regional approach is that a unique aspect of placer mining, preserved from intensive large-scale exploitation systems, is available for comparative research.

ACKNOWLEDGMENTS

A project with a regional approach requires cooperation among many people. For this survey, the assistance and sponsorship of the Palouse Ranger District of the Clearwater National Forest has been essential. To a large extent, the broad scope has been possible because of the support given by the Timber Management staff and Blake Ballard to the Forest Service policy of resource multiple-use. In Resources, the cultural resource program as maintained by Hank Johnson has been provided with the means to accomplish problem-oriented researches and consists of permanent data and reference files. The entire program is directed by Jim Dewey, resource assistant, whose experience and concern for local history gave early recognition to the importance of the Hoodoo district and a survey that needed to be larger than any specific sale project. Ranger Dave Colclough also possessed this perspective, and his considered, outspoken support gave clear direction for the development of the cultural resource management effort.

My researches were greatly assisted by the staffs of the auditors' offices of Nez Perce and Latah counties. The Latah County Historical Society, with its excellent local history library and oral history collection, under the directorship of Keith Petersen, had a central role as a source for information and new directions for inquiry. Numerous people provided specific details about the Hoodoo district, and they were all as gracious as Frank Milbert, who shared his autobiography, histories, photograph collection, and a day on Gold Creek. Roy Chatters made me welcome at the Boomerang Museum in Palouse and gave generous access to his extensive history collections of Whitman County. I appreciate the advice and counseling of my major professor, Roderick Sprague, and

committee members, Frank Leonhardy and William Greever.

The original photographs used in Figs. 1, 2, and 15 were loaned for copying and use in the text through the courtesy of Roy Chatters and Del West.

Finally, I wish to thank my wife, Noreen, for her apropos comments and prodding, which are based on an appreciation of the temporal depth of my research style.

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INTRODUCTION

"Why, then, is it important to tell of these manias?
Because this is the way that men spent their lives."
(Paul 1947:242)

The Study Area and Research Problem

In the history of the mountain West, gold rushes have often been the original impetus behind mass Euroamerican settlement. The legendary life in the gold fields was a significant part in the metropolitan development of San Francisco, Seattle, Denver, and Portland. But there were also gold discoveries which had limited impact and had only modest roles as a kind of cottage industry in local economies. The Hoodoo Mining District in northwestern Latah County, Idaho, seems to have been one of these. It is only rarely mentioned in histories of the Plateau and northern Idaho. Yet, the permanent settlement of the upper Palouse River valley began and subsequently frequently turned on the success of Hoodoo miners.

The primary justification for an historical and archaeological investigation of the Hoodoo Mining District lies in the imminent negative impact of commercial logging in the area. The majority of placer mined drainages are within the boundaries of United States Forest Service lands, and that agency has begun in intensive effort to increase the annual timber output within this ownership. While the entire area has been logged previously, those earlier activities consisted of "high-grading" the most valuable and easily accessed trees. The current effort will include unprecedented road construction and intensity of cutting. Not only will archaeological sites be damaged or destroyed in the timber sales, but the subsequent use of the new roads for recreational and

hunting activities will increase the traffic through sites, many of which currently appear undisturbed since the time of their abandonment.

These negative aspects should not be overemphasized, however. The U. S. Forest Service seeks a complete archaeological mitigation of these timber sale impacts, not only to reduce damage to cultural resources to the minimum but also to develop the interpretive potential of this historic area. Identification of significant events and places in the Hoodoo district will assist the Forest Service in an ongoing program of culture history investigation, with the ultimate goal of public use and information.

The central research problem for this thesis, then, is to identify the remains of placer mining activity within the Hoodoo Mining District. Since the region has been previously surveyed on a site-specific basis only (relative to the immediate needs of particular federal resource management projects), there is at present no core of data upon which to found an archaeological analysis. The previous surveys and potential site locations derived from general histories were compiled in the overview by Thomas Hudson (1975) and augmented by the 1976 surveys of Lorelea Hudson. It must be emphasized that these surveys were accomplished primarily in response to the larger management needs of the Forest Service as a federal agency. As a body of data, their raw form was necessary to simply provide protection of sites from particular project impacts in particular locales.

The plans for increased logging activity and the multitude of planned projects which will crosscut archaeological sites require that a broad-based regional research design be adopted for the problem of identification. The use of the Hoodoo Mining District as the boundaries

for this thesis research is arbitrary to the extent that the Palouse River drainage system, northern Latah County, or the entire Palouse Ranger District could also have been selected to investigate historic placer mining. The Hoodoo district was selected, however, because of the historically unique role of the mining district in the United States as a social organization that produced interaction within a specific community over an explicit geographical area. General analyses of the mining district as a social form, legal entity, and economic unit can then be used as a comparative control against which to assess historical and archaeological data collected from the Hoodoo district.

The importance of a regional design, especially its expanded potential in cultural resource management archaeology, has been stated many times. As early as 1950, Julian Steward (1977:239) emphasized that important problems in area research could be converted into hypotheses for cross-cultural testing of postulated regularities in human behavior. In stressing the region as the most favorable field for detailed study of the relationships between culture and environment, Willey and Phillips (1958:19-20) cautioned that in such a geographical space cultural homogeneity could be expected but not counted upon. Nevertheless, the objective of a regional design is to isolate "the content, the structure, and range of the cultural system" to answer questions about "processes of change and evolution" (Binford 1964:425,434). Although the Hoodoo district is a region based on a type of economy and technology, potential problems in correlating this analysis with other systems can be clarified because of the historical and geographical characteristics of a mining district. Thus, the cumulative usefulness of regional designs is served (Goodyear, Raab, and Klinger 1978:165).

Secondarily, the analytic use of the Hoodoo Mining District can be considered as a topical research design, with its attendant broad temporal and spatial implications (Goodyear, Raab, and Klinger 1978:167). Being centered on placer mining, the goals for inquiry can potentially include other districts in Latah County, other minerals regions in the northern Rockies, and the peculiar origins of American placer mining. For this thesis, the problem of identification will cover the role of the Hoodoo district as a factor in economic development. This purpose requires that the regional design for historical documentation consider a broader geographical area than the archaeological survey. This seems acceptable, however, since the character of such data should be clearly distinguishable from that pertaining specifically to the Hoodoo district, and the general context of the Hoodoo regional design is necessary to help focus the process of identification of the mining district as a dependent sociocultural subsystem (Steward 1977:231-234).

The identification of cultural activity within the Hoodoo district requires a sampling procedure which will provide representative and reliable data about placer mining. Since general local histories agree that the western slopes of the North Fork Palouse River constituted the heart of the district, those mines are the targets for the archaeological survey. As trends in the historical documentary research reveal other significantly mined drainage systems, these are included. One of the main goals for this approach is to describe the formal variability and spatial range of cultural features so that relationships between populations of types can be analyzed (Binford 1964:433). In actual fact, as will be outlined below, many scantily mined drainages were surveyed as well because, after following a creek up to its mountaintop source, it is

necessary to come back down again.

Some general kinds of questions about the placer region can be looked at with the results of the identification survey. These questions regard popular perceptions of the district; to some extent they are myths because they are based on fragments of information transmitted and distorted in conversations held in variable circumstances through time. The subject matter, however, concerns some of the major features of the Hoodoo district, and therefore by using the oral traditions as an approach to past behavior, the gap between the documentary and archaeological evidence can be bridged somewhat (Brown 1978:278). The purpose in proposing these questions is to aid in the collection and development of relevant data. They are not given as hypotheses to be tested because the conduct of the survey itself will result in a source from which such formulations can be made.

Along with some informal interviews, the extensive oral history collections of the Latah County, Idaho, and Whitman County, Washington, historical societies are an essential feature of the evidence presented. Both collections represent systematic efforts to record qualitative remembrances of many aspects of the histories of the respective counties, and in the case of the large Latah County collection, many of the interviews are transcribed for comparative analysis. One of the most persistent questions to be answered by the survey is the extent to which the placer ditch network can be characterized as Chinese; and hence, what influence did Chinese mining have? Another question involves the social and individual identities of Hoodoo miners, given the impressions which they provoked of independence and loneliness and sporadic wealth. Both questions are part of the problem in identification, and the answers will contribute to perspectives on the Hoodoo district.

The Physical Environment

The Hoodoo Mining District is located on the headwaters of the Palouse River where it flows out of the Hoodoo Mountains in northeastern Latah County, Idaho (see Fig. 19). Historically, the specifically recognized legal boundaries of the mining district have fluctuated, but it has always been centered on four gulches draining into the North Fork Palouse River; T. 42 N., R. 2 W., Boise Meridian (Boyd 1965:34; Emery 1897; Faick 1937:52; McNeill 1971:54; Miller 1972:19; Western Historical Publishers 1903:585). These are Hoodoo Gulch, Greenhorn Gulch, California Gulch, and White Pine Gulch. These and all the important placer mined drainages flow into the North Fork Palouse River and Palouse River from the north and west. The other important tributaries of these two rivers are Mountain Gulch, Eldorado Gulch, Moscow Gulch, Cleveland Gulch, Banks Gulch, Poorman Creek, Strychnine Creek, and Excavation Gulch. The only major hardrock mine is located just east of these drainages across the Baby Grand Mountain divide on Mizpah Creek.

The Palouse River flows in a generally westward and southward direction until it empties into the Snake River in southeast Washington state. Until the river emerges from the Clearwater Mountains (of which the Hoodoo Mountains and their westward foothills are subsidiary), however, it passes through a broad valley. The Hoodoo Mining District is at the upper end of the valley. The present site of Laird Park, about four miles northeast of Harvard, Idaho, and Strychnine Ridge mark the end of the bottomland proper. From here the river passes through the towns of Harvard, Princeton, Hampton, and Potlatch. Its major tributaries in this section, east-to-west, are Meadow Creek, Jerome Creek, Hatter Creek, and

Gold Creek. On the north the valley is bounded by Gold Hill, a 4700-ft. and somewhat isolated imminence. To the south is an east-west trending crest called the Palouse Range, of which Moscow Mountain, at about 5000 ft, Ball Butte, Basalt Hill, Mt. Margaret, and Mica Mountain are significant prominences.

Going farther west, the Palouse River exits the valley into the more open country of the Palouse Hills. Two miles west of Potlatch, Idaho, near the crossing of the river by modern U. S. Highway 95 is Kennedy Ford, once known as the only suitable crossing for horses and wagons along the flanks of the mountainous country (Milbert n.d.:8). The north-south route earlier favored by native Americans closely approximated that of Highway 95, and its favored rest stops were frequented by Fathers DeSmet and Cataldo (Harker 1941:38; Palouse Town and Country Study Program 1962:10; Platt 1974:6).

The town of Palouse, Washington, another seven miles west, is located astride the east-west axis of the Palouse River and the north-south axis created by the wall of Rocky Mountain foothills just described. It is this relationship which has played a demonstrable role in the economic geography and historical development of the Palouse River valley.

The region just described lies in two physiographic provinces (Fig. 19). The Palouse River valley and Palouse, Washington, are in the Palouse Hills subdivision of the Columbia Basin province (Easterbrook and Rahm 1970:153; Ross and Savage 1967:144). It is a region developed on flows of basalt, over which thick loess deposition has created characteristic rolling hills and fertile agricultural soils (Easterbrook and Rahm 1970:118; Soil Conservation Service 1973:3,4,8,9). The Hoodoo

Mining District is on the immediate edge of the Northern Rocky Mountain province. Generally, the province is characterized by folding and faulting, with "high, massive mountains and deep intermontane valleys" (Ross and Savage 1967:136,143). The mines are located at elevations between 2600 ft and 4600 ft.

Climatological data are available for the area around the Hoodoo Mining District from precipitation observations taken at Potlatch, Clarkia, and Elk River, Idaho, and temperature observations at Potlatch and Elk River (Pacific Northwest River Basins Commission 1968 and 1969). Mean annual temperature during a period between 1931 and 1960 was 44.9°F at Elk River and 47°F at Potlatch. The mean high monthly temperatures at Elk River were 83.9°F, 81.2°F, and 74.5°F recorded during July, August, and September, respectively. The mean low monthly temperatures were 20.5°F, 21.2°F, and 22.6°F recorded during January, February, and March, respectively. At Potlatch, the mean high monthly temperatures were 74.4°F, 84.9°F, 83.7°F, and 74.5°F recorded during June, July, August, and September, respectively. The mean low monthly temperatures were 25.4°F, 21.1°F, and 23.5°F recorded during December, January, and February, respectively.

Mean annual precipitation during the same period was 38.14 in. at Clarkia, 40.97 in. at Elk River, and 24.97 in. at Potlatch. The wettest periods were November through February at Clarkia and Elk River, where the monthly means were greater than 4 in. At Potlatch, the wettest period was November through January, when more than 2.8 in. accumulated. The greatest number of days with 1 in. or more of snowfall at Potlatch occured during December, January, and February. The driest periods were July, August, and September for all three stations, when as little as

0.55 in-1.80 in. of precipitation was recorded.

The soils in the Hoodoo Mining District are named as the Huckleberry-Minaloosa Association and are generally formed from residuum and colluvium from metasediments (Soil Conservation Service 1973:7). They are influenced by 26 in. to 35 in. mean annual precipitation, with the Huckleberry loam generally wetter, and the Minaloosa generally drier on the southerly aspects under grand fir. The original natural vegetation is forest habitats with pachistima understory, and the soils in this regime are dry for generally less that 45 days in summers. Toward ascending, wetter elevations the forests consist of grand fir, Western redcedar, cedar-hemlock, and spruce-alpine fir tree species (Parker 1952).

Measurement of the seasonal discharge by the Palouse River and several of its tributaries in the Hoodoo Mining District began annually in 1974 (Table 1)(Palouse Ranger District 1974-1977). Though the data for three of the four years presented are estimated, the relative availability of water for placer mining purposes is well-illustrated and correlates with the precise instrumented measurements taken in 1976. The results indicate that peak flow can be expected in mid- to late-April, and that the flood stage is dramatically higher than low water, as might be expected of snow-fed mountain streams. The low flow occurs in early- to mid-September and again in mid- to late-February. Thus, not only are the streams low after the summer dry season, but the cold temperatures and snowpack hold the increased moisture of late winter. This relationship accentuates the dramatic effect of the April flood stage.

Another notable phenomenon can occur in December after some snow has fallen. If the month then turns rainy, peak stream flow will result from the snow that will subsequently melt (Richard Presby 1980:personal

TABLE 1. Palouse River Drainage Low and Peak Discharge - 1974 to 1977

Site	1974[a] Date	1974[a] cfs[b]	1974[a] Low/Peak	1975[a] Date	1975[a] cfs	1975[a] Low/Peak	1976 Date	1976 cfs	1976 Low/Peak	1977[a] Date	1977[a] cfs	1977[a] Low/Peak
Palouse River (at Highway 95A bridge)	9/15	25	L	9/16	21	L	9/19	45	L	9/14	13	L[c]
							2/11	25	L			
	4/26	880	P	5/2	180	P	4/16	660	P	3/31	60	P
Strychnine Creek (at mouth)	9/3	3	L	9/16	18	L	2/10	4	L	9/14	1	L[c]
	1/18	144	P	5/2	24	P	4/16	50	P	4/5	6	P
	4/26	140	P									
Palouse River (at Little Sand Creek)	9/3	18	L	9/15	18	L	2/10	20	L	9/14	12	L[c]
	4/26	700	P	5/2	140	P	4/15	600	P	4/5	60	P
Palouse River (at Big Sand Creek)	9/3	18	L	9/15	18	L	2/10	20	L	9/14	8	L[c]
				2/21	18	L						
	4/26	450	P	4/29	90	P	4/14	480	P	4/4	36	P
Upper Strychnine Creek (at Big Camp)	8/30	2	L	9/15	2	L	2/9	4	L	9/13	1	L[c]
	1/18	80	P	4/29	10	P	4/15	24	P	4/5	3	P
	4/29	64	P									
Poorman Creek (at mouth)	8/30	1	L	9/15	1.5	L	2/11	24	L	9/14	0.3	L[c]
				2/21	1.5	L						
	4/29	48	P	4/29	12	P	4/19	180	P	4/4	2.5	P
North Fork Palouse River (at Eldorado Gulch)	8/30	4	L	9/16	6	L	2/11	5	L	9/13	2.5	L[c]
				4/9	6	L						
	4/29	75	P	4/29	18	P	4/16	26	P	4/4	5	P
White Pine Gulch (at mouth)	no data			9/15	3	L	2/11	4	L	9/13	2	L[c]
				4/29	14	P	4/14	20	P	4/4	4	P

SOURCE: Data collated from File 2540 Water Uses and Development, Palouse Ranger District, Potlatch, Idaho.
[a]Estimated [b]Cubic feet per second [c]Low water estimates in February not obtained because of river ice

communication).

Finally, with regard to seasonal stream discharge and the ability of placer miners to work their ground, the first areas from which snow melts are important. Field visits to section 22 and the Poorman Creek drainage on 10 March and 21 April, 1980, showed that the major divides, ridge crests, and south- to southeast-facing slopes were clear or beginning to clear of snow (Waldbauer 1980). The narrow, deep gulch bottoms and west- to north-facing slopes and creek bottoms were quite deep with snow. It is not unusual for these protected valleys to retain snow cover well into May (Francq 1962:9). Thus, by mid-March hillside and high gulch placers fed by ditch-transported water could be worked.

Limited research on fauna distributions has been done for the Palouse Range, southwest of the Hoodoo Mining District (Francq 1962; Lapen 1965). The results indicate an abundant variety of small mammals, such as beavers, squirrels, rabbits, and woodrats, preferring particular habitats based on cover, moisture, and availability of food (Francq 1962:94). Large game animals, especially white-tailed deer, find both summer and winter ranges within the region and feed on snowberry, serviceberry, white spiraea, and rose (Lapen 1965:83,101). These studies also show that man's activities, primarily agriculture and lumbering economies, have had measurable influence on animal populations and their habitats (Francq 1962:92; Parker 1952:456). During the archaeological field surveys squirrels, chipmunks, deer, trout, rabbits, and beavers were frequently observed throughout the mining district.

Evaluation of Geology in the Placer Mineral Context

The broad valley bottoms of the Palouse River and North Fork Palouse

River in the Hoodoo Mining District are filled with up to 25 ft. of Quaternary alluvium (McNeill 1971:24). This consists of unconsolidated sand and gravel derived primarily from the five members of the Striped Peak and Wallace Formations of the Pre-Cambrian Belt rocks. The alluvial deposition is 500 ft. to 1000 ft. wide for most of the passage of these rivers through the mining district. The majority of tributary creeks contributing depositional material drain into the North Fork from the west and into the Palouse from the north. Of these, Mountain Gulch, Eldorado Gulch, White Pine Gulch, and Poorman Creek each consist of alluvial beds one to three miles long (McNeill 1971:Plate I).

Though the source for gold in the Hoodoo district has not been identified, both Anderson (1941:655-656) and McNeill (1971:57-58) postulate igneous activity into the Belt Supergroup rocks as the probable causal sequence.

> Metallization occured during one or more of the metamorphic events, which appears to have caused remobilization of metals from the Belt Supergroup rocks into zones of accumulation such as the Mizpah fault [McNeill 1971:95].

The Belt rocks themselves are metasedimentary and metamorphic. The younger striped Peak Formation consists of two members composed of thin-bedded shales and quartzites (McNeill 1971:19). These occur around Bald Mountain and Little Bald and above White Pine Gulch on the North Fork Palouse River. Toward the southeast and along the lower reaches of the North Fork are the three members of the Wallace Formation. It is older and is composed of thin-bedded, fine-grained calcareous quartzites, impure limestones, argillites, and shale (McNeill 1971:11).

The crucial events for metals formation were the periods of folding and faulting of the Belt rocks. The two major features are the Hoodoo

fault, which trends northwest-southeast along the crest of the Hoodoo Mountains, and the Mizpah fault, which trends southwest-northeast from the Hoodoo fault and upon which the Mizpah copper mine is centered. It is the incompletely understood set of radial fractures centered at the head of White Pine Gulch, however, which is associated with gold quartz veins (McNeill 1971:52). The veracity of this as the gold source is suggested by similar patterning at Gold Hill, twelve miles to the west (Anderson 1941:655; Faick 1937:41). There, mineral bearing solutions from the Belt rocks were remobilized along a temperature-pressure gradient, and the resultant metals were contained by zones of accumulation, such as faults.

In closely examining this radial fault pattern, the entire bed of White Pine Gulch occurs upon one of the supposed, concealed arms (McNeill 1971:Plate I). Also closely associated are the bed of Moscow Gulch and a precisely located fault running southeast across the divide between White Pine Gulch and the North Fork Palouse River and through the northeast corner of section 12 (T. 42 N., R. 2 W.). This second location is especially notable as the site of one of the prominent hillside placers known as "China Hill" (Latah County Mining Notices; Book 1:454, Book 2: 13,203,207).

There are also several faults, unrelated to the anomalous radial pattern, which are important as locations for historic placer activity. Mountain Gulch, California Gulch, Banks Gulch, the forks of the Palouse River, the lower one-quarter mile of Poorman Creek, and the North Fork Palouse River between Beagle Gulch and just above White Pine Gulch all are mapped as concealed fault locations. Hillside and gulch placers occured on the faults in sections 22, 15, 10, and 11 (T. 42 N., R. 2 W.).

Finally, there is an "abrupt change in the lithologic character of the rocks between the two formations (Wallace and Striped Peak) [which] suggests on unconformity of some magnitude (McNeill 1971:21)." The Striped Peak formation represents a general lack of metamorphism, while sequences of metamorphism have created the schists and quartzites at the top of the Wallace formation. Since there is a lack of gradation from high-grade contact metamorphism in the Wallace formation to the Striped Peak formation, it is thought that a considerable period of deposition is missing from the stratigraphic record. No estimation of any influences upon the existing alluvium of the Palouse River drainages or ancient streambeds on upper slopes has been made regarding this unconformity.

Geologic criteria for placer minerals, then, are well-met in the Hoodoo Mining District. Erosion has cut deeply into mineralized strata to create major alluvial deposits for creek and gulch placers in the Palouse River, North Fork Palouse River, Poorman Creek, White Pine Gulch, and Mountain Gulch. Other significant alluvial beds are primarily in creeks on the west side of the North Fork Palouse River. Ancient stream gravels are not necessarily a significant aspect of the placer potential. However, possibilities might be prospected along the major unconformity in the stratigraphy or in the broad river valleys (Wiley 1915:9). Both of these could result in bench or hillside placers. A more likely possibility for hillside placers, however, is the fault system, with its numerous radiations crossing the area south and southeast of Bald Mountain. The unique radial pattern around White Pine Gulch is the best example of this. Similar faulting occurs on the divide between Poorman Creek and the North Fork Palouse River. Thus, the fault-related mineral accumulations might have initially been construed as ancient stream

gravels for hillside and gulch placers or as the first indications of lode veins. In either case, the resultant placer exploitation was a unique characteristic of the Hoodoo Mining District.

HISTORICAL DOCUMENTATION

When the California placers that could be worked by simple methods began to play out, many miners moved north. These were men who had gone west in the Rush of 1849 and had learned placer mining through the use of a pan, rocker, and sluice. They had mined their claims either individually or in small associations with a half dozen or so of their neighbors. By such a cooperative effort, a company of placer miners considerably increased the quantity of gravel which could be processed (Burcham 1958:15).

By 1851, more sophisticated methods and hard capital were needed to exploit California gold fields, and discoveries at the Rogue River in Oregon started the northward rush by prospectors (Johansen and Gates 1967:265). In 1855, the movement had reached Fort Colville, on the east bank of the Columbia River, where the discovery of gold was to overrun that Hudson's Bay Company post (Trimble 1914:16). The event was especially hopeful for the economy in the Willamette Valley and on Puget Sound, where depression and business stagnation since 1852 might be relieved with an influx of currency (Burcham 1958:30; Tanner 1947:60). Subsequently, the ebb and flow of populations affected the economies of the Northwest and California such that they were alternately subsidiary to one another in providing mining supplies and equipment.

Development of the Colville area was not uncontested. The native American populations became alarmed and aroused by the stampede of miners (Wells 1963:2). Treaties with Plateau-dwelling peoples initiated by Isaac I. Stevens in 1855 failed to satisfy either side, and miners en route to Colville across Yakima country were attacked. By that time, Oregon and Washington territorial governors had called out military

volunteers, who began to roam around the country. General Wool, commander of the regular army's Department of the Pacific, "claimed that the war had been precipitated by the treaties of Stevens, that the volunteers had entered it largely in order to plunder the Indians, and that citizen speculators had fostered it for the purpose of getting more money into the country from the Federal Government" (Trimble 1914:21).

The unrest stunted mining activity around Fort Colvile through 1859, causing the gold rushers to disperse for prospecting in other areas such as the Okanogan country and the Thompson River in British Columbia. Gold discoveries along the Fraser River sparked a further influx of miners, especially from California via Victoria, British Columbia (Trimble 1914: 27-28). Interest in the Colville region was revived in 1859 when the United States Army built forts and provided large escorts for the Boundary Commission, whose representatives were charged with clearly marking the United States-Canada boundary (Trimble 1914:37-38).

The final demonstration of uncontrolled intrusion by Euroamericans into the Inland Empire was the reversal of General Wool's decision to keep settlers out. The knowledge "that it would be impossible to stay the advance of miners and of accompanying settlers, determined [General Clarke, Wool's successor,] to reverse Wool's policy and to recommend confirmation of Steven's treaties" (Trimble 1914:37).

Thus, by the time of the Mullan Road survey and just prior to the major gold discoveries in northern Idaho, prospectors and adventurers were present in significant numbers wandering over the entire region. Rumors of diggings in northern Idaho had reached Portland rather early (Bancroft 1890:234-245; Hawley 1920:100; Western Historical Publishers 1903:19). E. D. Pierce, whose discoveries precipitated the massive rush to the Nez

Perce mines, had prospected the territory intermittently prior to leading a party to Oro Fino Creek via a route through Latah County (Beal and Wells 1959:281-288,298; Defenbach 1933:258; French 1914:26; Harker 1941:38; Hawley 1920:103-104; Western Historical Publishers 1903:19). Also by this time, the nature of the prospecting parties was clearly established (Livingston-Little 1965:40). "Prospecting parties such as led by Pierce usually consisted of from five or six men up to as many as fifty men" (Burcham 1958:32). They were organized around a core of experienced miners, who had usually done apprenticeships in the California fields. An expedition which discovered valuable deposits could then ensure their success by organizing a mining district, again, on the California style.

At the time of the earliest descriptions of the upper Palouse River country in Latah County, then, gold prospectors were consistently visiting remote regions in northern Idaho. When John Mullan reported his findings on the military road survey of 1860, it is clear that he had noted various independent reports which came to him. He stated, "At the headwaters of the stream and its tributaries limestone is said to be found, and there also, in places, the soil is fertile, and lying, as it does, under the slopes of the mountains, and in close proximity to the Nez Perces mines, it is not at all improbable that the grazier and agriculturalist will find at no distant day tracts of land that will amply repay their reclamation" (Mullan 1863:13). It is possible that, by mentioning the supposed occurence of limestone on the upper Palouse, he is referring to prospectors' observations. Primary ore deposits can be found as mineralized chlorides upon the contact zone of limestone (Young 1970:16). Since this type of deposit can be readily smelted in crude furnaces, such occurences would be of interest for regional economic development.

Two subsidary parties of Mullan's Military Road Expedition made explorations away from the main route toward the head of the Palouse River. The one which penetrated farthest was led by G. Sohon, guide and interpreter, and reached the north peak of the "Tat-hu-nah" Hills (the Coeur d'Alene Indian name for what is now the Palouse Range) at the headwaters of Smakodle Creek (the South Fork Palouse River)(Mullan 1863:97). He described the country northeast and east as densely forested with pine. To the southeast were broken flats, free of timber.

Sohon's mission was to explore a possible road to the Hell's Gate defile, and when he at first inquired of Coeur d'Alene Indian leaders the likelihood of finding one, they extolled the route through the "gate" two miles north of the Tat-hu-nah Hills. It could be reached by following the Mo-ho-lis-sah River (the main branch of the Palouse River above its forks at present-day Colfax, Washington)(Mullan 1863:97). Later, when they discovered the actual purpose for Sohon's survey, the guides refused to assist any further and advised that the road be built in Pend Oreille country:

> [Yah-moh-moh] made an energetic speech, declared his friendship for whites, &c., but described the mountains as formidable, the forests and underbrush as impenetrable, and the streams as dangerous, if not impassable, &c., and implored me not to think of exploring the route—that if I did I would perish, and rumor would say that the Indians had killed me [Mullan 1863:99].

From Lake Coeur d'Alene, Sohon's party also traveled eight and one-half miles up the St. Joe River, just across the divide from the upper Palouse River. P. M. Engel, topographical engineer, reported that the Coeur d'Alene people considered the area rich berry country and visited there during the end of July and in early August (Mullan 1863:105). He also stated that the Indians admitted to firing the forest, so that deer

could not feed on moss during the winter, obliging them to farther descend the valleys.

The second subsidiary exploratory party of Mullan's expedition was led by topographer Theodore Kolecki. His effort reached Pyramid Peak (his name for present-day Steptoe Butte). From there he was able to provide the following description: "The spurs of the Bitter Root mountains, from which it [Palouse River] proceeds were gently sloping and densely wooded. Pine timber, in scattered groves, reaches from them to within four or five miles of Pyramid Peak" (Mullan 1863:104).

Isaac I. Stevens also described the abundance of timber in the Palouse River drainage, which he saw during his survey for a transcontinental railroad route. "We had a view down the Peluse for some thirty or forty miles, and the timber was apparently as large and abundant at the lower end of the valley as at our present camp" on the ridge southeast of present-day Moscow, Idaho (Stevens 1860:199-200).

Traditionally, the discovery of gold in the Hoodoo Mining District occured in the early 1860s (Faick 1937:52; Hubbard 1957:10; Kincaid 1934: 13; Miller 1972:19; Milbert n.d.:1,105; Palmer 1979:1; Western Historical Publishers 1903:585). A man named Hoteling is supposed to have found it in Hoodoo Gulch. No primary documentary source has as yet been found which substantiates this fact. However, in 1873, John Hoteling, with John I. Doyle, Wm. H. Flake, and Ed Pearcy claimed water rights for mining on the north fork of the south fork of the St. Joseph River: "...we hereby claim the right to erect dams ditches flumes and any and all necessary constructions or improvements for divertion [sic] of the water of said stream to the pruposes aforesaid..." (Nez Perce County Final Receipts, Book C, section D:60-61). Even later, in July and August of

1908, John Hoteling, Randall Kemp, and Wm. Goldthwaite located claims in Greenhorn and Hoodoo Gulches (Latah County Mining Notices, Book 4:216-219). Stories told to long-time Gold Hill miner Frank Milbert during mining district meetings also recount the return by discoverer Hoteling to Gold Creek about 1870 (Milbert n.d.:2). It thus seems credible that Hoteling may have been associated with early Hoodoo mining.

Other secondary sources, reports based in interviews of early Hoodoo miners, emphasize the transitory nature of that period. Interviews done between 1885 and 1896 by Paul Bockmier, Sr. place the first discoveries in Gold Creek on Gold Hill in 1862 (Bockmier 1891-1977:Folder 10). Another interview cites the discovery of placer gold on the North Fork Palouse River by Frank Points in 1872 (Wiley 1915:10). A long-time Palouse, Washington, resident and mining investor stated that the first pioneers branched out from Pierce City and Florence in the early 1860s and came to Hoodoo (Goss 1938:2). This assessment, given the contemporary regional pattern, supports the established conclusion that the Hoodoo mines were the "...base of original white activity in the Palouse" (Goss 1938:2).

It is clear, however, that the values of placer gold deposits on the upper Palouse River were not sufficient to hold the discoverers. The Hoodoo Mining District was considered to be four gulches emptying into the upper Palouse River, which in 1862-1863 were reportedly paying $20 to $100 per day per man (Western Historical Publishers 1903:585). These wages did not last long, however, and profitable activity in the late 1860s and 1870s was said to be sporadic. One of the major factors mitigating against profitability was the expense of transporting supplies. The long haul from Walla Walla to Lewiston made only the richest

properties economical (Boyd 1958:34). "Traders, trappers, and farmers could live off the land, but miners could not. They were almost totally dependent upon outside sources for food, clothing, and tools of the trade" (Oviatt 1965:168). Though Lewiston, 80 miles away, was the nearest trading point, freight rates for provisions and tools packed into the Hoodoos on ponies out of the Snake River canyon compelled working only those mines which paid more than $20 per day per man (Bull 1945:3; Western Historical Publishers 1903:586).

A second major factor which ended the early excitement on the upper Palouse River was news of rich strikes elsewhere (Bull 1945:4; Milbert n.d.:2). On Gold Creek by 1863, there were supposedly 100 miners, a village, a store, and a post office; but a short time later it was nearly deserted (Bockmier 1891-1977:Folder 10). Work in the Hoodoo mines ended with news of the strikes in Alder Gulch, Montana, and use of the Mullan Road may have contributed to this (Faick 1937:52; Hubbard 1957:10; Western Historical Publishers 1903:586).

Walla Walla became well-established as a distributing center for mining regions (Johanson and Gates 1967:266-267; Trimble 1914:121), and one of these possible routes to the Montana gold fields was Portland to Walla Walla by river traffic, then onward via pack train over the Mullan Road. "Several trails radiated from this bustling little metropolis. During the relatively short packing season, long lines of horses and mules plied the faint traces to and from mushrooming boom camps" (Oviatt 1965:169). Regular pack trains were bound for Helena by May 1863. Thus, the freighters who carried spring supplies to Hoodoo miners may have also transmitted news of the current rush.

Further evidence of a decline in mining activity on the Palouse

River is found in the field notes of General Land Office survey maps. When surveyor Henry Meldrum arrived in July and August, 1871, to locate Township 41 North, Range 4 West, Boise Meridian, he captioned the river course on his map, "Placer gold mining on the Palouse River." Later, when the surveys were completed in 1879, a note was added, "Hon. S. S. Fenn, delegate from Idaho, says there has been and still are some very rich mines on the Palouse, [?] some of the small streams that run [?] but the best have been worked out" (General Land Office map, T41N, R4W, BM; December, 1874).

If early gold discoveries in the Hoodoo district did spark any excitement, it meant very little in terms of attracting a permanent population or provoking entrepreneurial drives by the miners themselves. The first settler near Palouse City did not arrive until 1869. At that time William Ewing established a ranch with 400 cattle about two and one-half miles above the future townsite at Palouse Bridge (Gilbert 1882:442; Palouse Town and Country Study Program 1962:11, 12; Western Historical Publishers 1903:581). A man named Atwood was known to have been in partnership with Ewing, but whether Joseph Knight, Joseph Hammer, or A. Towner who also arrived at that time were part of a cooperative cattle-raising business is unrecorded (Kincaid 1934:1). The permanence of those efforts in terms of physical structures can also be questioned, since the pattern of briefly running cattle in an area for the cash market of the U. S. military and later the mining camps was a common practice. The soil was not necessarily an inducement to immigration because of the abundance of unoccupied land and supposed limited quantities of agricultural land. In fact, the altitude and low annual rainfall on the plateau were thought to make it the least desirable farm country (Gilbert 1882:443). "Very

few came to locate with a view of establishing a home here, their purpose being to graze stock for a few years and then abandon the country, raising some grain in the meantime for their own use, and possibly a little to sell, if anybody wished to buy" (Gilbert 1882:224). Ewing and Atwood, as ranchers, would not sell cattle to the "nesters." In Atwood's case, he said that he'd come to the Palouse to get rich and therefore wouldn't sell (McKinney 1970:tape 1, side 1, in 11-94).

The development of the Pierce and Oro Fino mines made the first valuable produce market at Walla Walla, Washington. As the good land around the town was taken up, settlers moved toward the northeast. News of preparations for the Northern Pacific Railroad route encouraged settlement along upper Union Flat Creek in 1869. By 1871, the population there and at the Palouse forks (present-day Colfax, Washington) had stabilized at about 200. A sawmill had been built at the Palouse forks, and Anderson Cox was planning to construct a flour mill. The area was then part of Stevens County, with the county seat far north at Colville, but the increasing settlement and political pressure from Cox influenced the territorial legislature to create Whitman County, with its seat at Colfax (Gilbert 1882:433). Along with Walla Walla, Spokane, and Stevens Counties, Whitman was specifically organized to better exploit resources at the behest of mining and stock-raising interests (Abbott and Carver 1978:61,63).

Around the future site of Palouse City and eastward toward Deep Creek in Idaho Territory there was scattered settlement. James "Modoc" Smith traditionally built the first cabin on the Palouse townsite in 1873, and the other geographically important crossroads were claimed by 1874: Daniel Notman at the Freeze church site on Deep Creek, Arthur Green on

Gold Creek, and others at Palouse Bridge, Cedar Creek, and Four Mile. A regular mail drop which had been started at Ewing's ranch in 1873 was moved in 1874 to Four Mile, the ford on the Lewiston-Fort Spokane road, because Ewing experienced a stock failure during the winter and left the country (Palouse Town and Country Study Program 1962:11; Schell 1973:24).

Immigrants converged from the north as well, being supplied from Spokane and Colville via Pine Creek. George W. Truax located his homestead on the site of Farmington in 1871, about 23 miles northeast of Colfax. He was to become town proprietor after the trading post was built in 1877, but in 1872 when a post office opened, he and others were regarded as "stock raisers and general agriculturists" (Gilbert 1882: 443-444).

It is not clear whether the placer mines of the Hoodoo district were worked continuously from their discovery or the influx of settlers during the early 1870s brought renewed interest in them. It does seem likely that there was scattered occupation of the upper Palouse valley, and the most frequently recorded name is that of Jim Lockridge, or Long Jim. For years his cabin at the mouth of Jerome Creek on what became known as Chambers Flat was said to be the oldest structure in that area (Goss 1938:3; Kincaid 1934:14; Wiley 1915:11). His squatter's claim was favorably located between Gold Hill and the Hoodoos for his packing operation which brought miners' supplies from Walla Walla and Lewiston.

The importance of transportation, or rather the lack of it, cannot be overlooked in this period. Just as the arrival of Long Jim's pack string brought the necessities of food and tools to allow miners to continue their work, roads and transport were necessary to create an agricultural economy out of the growing pioneer settlements. To that end a

territorial road was declared in 1872 from Walla Walla to Colville via a Snake River crossing at Penawawa Creek, making Colfax a shipping point (Gilbert 1882:446). The reality, however, was that there was no large economic market for farmers. Grain was raised for livestock feed, and some produce could be packed eastward to the miners (pork sold as bacon to miners at 12¢ per pound). Daniel Notman, for instance, required a week-long trip, possibly just once a year, to Waitsburg to mill his grain and on to Walla Walla to buy groceries and dry goods (Palouse Town and Country Study Program 1962:11,12,19). The infrequent trips to Walla Walla were the result of the precipitous grade to Lewiston and the fact that farmers could not leave their crops for so long a time. By waiting until after the harvest, the roads were usually in bad condition as well (Western Historical Publishers 1903:582).

The route was shortened somewhat after 1874 when Henry Harmon Spalding, Jr. built a landing on the Snake River bar at Almota. "At this point the Snake River extends farther north than anywhere else and the grades are easier than at anyplace above Texas Ferry [Riparia]" (Gilbert 1882:445). It became a shipping point for the Oregon Steam Navigation Company, and it was then the first stable outlet for agricultural production in the Palouse. Almota town was laid out in 1877 with a warehouse and river ferry, and the new territorial road was located from Walla Walla through Dayton, Pomeroy, and Almota to Colfax.

It is significant that the Hoodoo Mining District was legally recognized early as an element of this growing network. On 8 April, 1875, the Nez Perce County commissioners in Lewiston heard a petition by Frank Points, H. M. Dufeild [sic], and P. W. McCabe. Their request, which was granted, was that the trail from Camas Creek below Gold Hill to Hoodoo

Camp be declared a county road (Nez Perce County Commissioner's Record, Book B, section A:15; Nez Perce County Road Book No. 2, p. 105). The weekly pony post from Lewiston was extended to Farmington that year, and shortly thereafter regular stage routes were organized. The drivers on those routes, Joseph Cox, Tom LaDow, Felix Warren, and Major Wimpsey; also included the mining regions to the east and northeast on their schedules, possibly in response to the miners' petitions (Western Historical Publishers 1903:582).

These regular commercial contacts imply that there was an organized community in the upper Palouse valley by the mid-1870s. The precise location of "Hoodoo Camp" is yet to be documented, however it is likely that it was near to what became known as "Grizzle Camp", the most notable mining boom camp in the region. Located on a knoll in present-day Laird Park at the end of the Palouse River bottomland, the expected arrivals of stages and pack trains probably served to select Grizzle Camp as the supply terminus, whereas previously camps had sprung up near to the most heavily worked claims.

Grizzle Camp took its name from Griswold's Meadow and the "squaw man" Griswold, who lived with his Nez Perce wife and children on the ridge above the junction of the Palouse River and Strychnine Creek (Bull 1945:4; Hardt n.d.:2; Palmer 1979:1). Originally he had settled near Viola, but when farmers arrived he moved "farther back." He then left the upper Palouse when the miners arrived:

> Many years ago, when the first miners came through the country there were lots of meadows, and fishing was wonderful. But then, after they'd muddied the streams and taken all the game that they could—now there weren't just a few miners, there were hordes of them—the country wasn't the same. Old Griswold, he'd shake his head and he'd say, 'No good, no good.' And he'd go on. He got enough skins

> from his beaver trapping that he done pretty well anyway [Hardt n.d.:4].

Various individuals took part in activity at Grizzle Camp, especially the local farmers who had produce to sell. One of these was Ed Graham, who is credited by one source, through interviews of those early miners, with having built in 1874 an eating house, a saloon, and a blacksmith shop (Wiley 1915:10). In the meadows he pastured his pack animals, along with the stock of Jap and Green Chambers, who ran a stage line through Viola to the Hoodoo district (Hardt n.d.:27). Graham's own homesteads were on the Palouse River (1887) and Meadow Creek (1891)(General Land Office map, T41N, R3W, BM; Nez Perce County Final Receipts, Book C #2, p.391: #1819).

With the exception of a hiatus during the Nez Perce War of 1877, the Palouse country grew rather quickly during the late 1870s and early 1880s. Worley, Farnsworth and Company built a sawmill at Palouse City in 1875 which can be said to have begun the lumbering boom (Palouse Town and Country Study Program 1962:21,23). The town itself was laid out then by W. P. Breeding, who had built a flour mill in 1874 (Gilbert 1882:443). Other businesses were established by W. L. Powers, William Ragsdale, and Waldrup and Kelley. Their goods came in on wagons while the mail, passengers, and express arrived by stage. The major impetus to development occured in 1877 when 18 wagons brought several families and their goods. They had waited at Dayton throughout the hostilities until an army escort could accompany them on the last leg of their journey (Kincaid 1934:1).

It seems likely that it was during this emergent period that the influences of Chinese immigrants played an important role. It was not uncommon to see in Palouse City, Chinese who operated a laundry and one or

two restaurants. It may have been the linkage of the Chinese community with the Hoodoo mines that provided a ready commercial climate in the town. "Quite a large amount of gold was being mined from the Hoodoo Mountains, and that is where alot of the Chinese headed for. Several pioneers conducted a business of transporting people to the mines" (Palouse Town and Country Study Program 1962:20). At the mines themselves whites were well aware of the wealth being extracted by the industrious Chinese on Poorman Creek, Excavation Gulch, White Pine Gulch, and China Hill. Just as in other Idaho gold districts, the Chinese were organized into tongs for the massive effort of large-scale placer mining. The following anecdote of a Chinese gentleman on the Chambers brothers' stageline illustrates this situation as well as gives particulars of Grizzle Camp and the Hoodoo Mining District:

> Then on up to Grizzly [sic] Camp, well that's where they stopped the night. And they got there, Green said, "You go on in the hotel." It was quite a nice big log cabin, and it had a restaurant there too, besides the room where people could stay. [A bear was killed and hung behind the cookhouse.] The next day they took him on up to Green's, the end of the stageline, where he found his Chinese coolies there working the mines up on China Hill...When they come back—the Chinaman always collected every bit of their gold dust, every time he came in, and he came every month, regular. And then he'd take the gold back down to San Francisco" [Hardt n.d.:28-29].

Chinese enterprise did not end with simple purchases of goods and services from Palouse merchants. The legal rights to profits from land and resources were negotiated between the leaders of tongs and town finance and real estate brokers. Many of these transactions were handled by A. A. Kincaid, J. G. Powers, and J. H. Wiley. Amongst them they probably controlled much of the available capital through Powers' Security State Bank (established in 1878), Kincaid's Northwestern and Pacific Mortgage Company, and the Palouse Mercantile, in which all three were officers

(Bensel 1891:29,30). An example of this type of exchange was the two 99-year leases taken by Charley ("Charles") Yet & Company in September 1886 and May 1887. For consideration of $500 they leased 40 acres of placer ground "including ditches, etc, for mining" (Nez Perce County Deeds, Book N:167,184). Other similar contracts are found in the Nez Perce County Book of Deeds, Volume 44:492-495, Volume 51:400, and Book N:163,164, 172,180,209. These deeds all date between 1886 and 1888.

It was also common for whites to hire Chinese miners to work claims. The largest crews were used by Adam Carrico on his Gold Hill enterprises, where it is reported between 80 and 200 Chinese worked at one time (Milbert n.d.:9; Miller 1972:23). In the Hoodoo district there is at least one known instance of this type of arrangement. A newspaper report of mining activity noted, "Several large parties have passed through the past week to the Hoo Doo mines, including Mr. Sam Marten of Farmington and Harry Britten with his corpse [sic] of Chinamen" (Palouse News 30 April, 1893:1). Another report toward the end of the season stated that the Chinese were paying a monthly rental fee of $75 for their diggings (Palouse News August 25, 1893:3). The only located claim by Britten (or "Britton") at that time was his Omega placer on the "Palouse River" about one-half mile above White Pine Gulch (Latah County Mining Notices, Book 2:65).

The Chinese presence in the Hoodoo district was probably curtailed after about the mid-1890s (Kincaid 1934:15; Moscow Mirror 11 December, 1891). Reports of depredations against Chinese claims begin about 1881 (Wiley 1915:11). The details of any individual report bear many similarities to many others, suggesting several versions of a few incidents or a recurring pattern of abuses. There is one known

prosecution in old Nez Perce County involving the murder of Chinese by a white man. In the fall of 1884, the bodies of three Chinese who were selling vegetables were found 12 miles east of Palouse. Ab Galloway (whose trial record is lost) had fled the area but was later arrested at Mount Idaho wearing the rubber boots which were missing from the Chinese camp. His actions had further incriminated him because, "He had passed by his usual trading place, Palouse City, and had gone 12 miles away to Farmington to purchase his supplies which he paid for in gold dust" (Stranahan 1947:12). He spent 189 days in jail (of which 180 were due to the fact that there were only two district court sessions per year) before being acquitted. Galloway is supposed to have said to the undersheriff who released him, "Could they do anything to me now if I told you who helped me do the job?" Whether or not the denouement is apocryphal, this was typical of the kinds of events which also drove Chinese from their diggings in larger Northwest goldfields (Esvelt 1959).

In the early 1880s mining enthusiasm shifted to the Gold Hill districts, especially along Camas Creek in 1881 and the Bishop ledge in Heath Gulch in 1883 (Nez Perce County Mining Notices, Book P:146-168,208, 212). These claims are among the first to be registered in modern Latah County according to the United States Mining Law of 1872, which established specific regulations for mining on federal lands. It is possible that through this period, the Hoodoo district was left to Chinese activities.

In any case, the first registered claim in the Hoodoo Mining District to be found in Nez Perce County records is that of an association which called itself the Palouse Mining Company. Eight men located the maximum allowable placer claim of 160 acres between the forks of the Palouse

River and Sowbelly Gulch and had its boundaries precisely laid out by the county surveyor (Nez Perce County Mining Notices, Book P:251). They were Andrew Grube; Edd Graham (also a homesteader on Meadow Creek); E. E., James, and F. M. Smith (the last, proprietor of the Black Hawk livery stable), John Wood, John Malhern (owner of the Cozy Saloon), and G. C. Havner (who is said to have established a town on the North Fork Palouse River which boasted a saloon, livery stable, and blacksmith shop) (Palouse News 5 June, 1884:1; General Land Office map, T42N, R3W, BM, 1883; Wiley 1915:10).

This marks the beginning of the first documented rush to the Hoodoo Mining District. Just what sparked it is not known; though as many as 300 Chinese may have already been at work (Wiley 1915:11). Between August, 1884 and July 1895, 90 claims were registered. Of these, 16 were made by associations of two or more miners, including that of C. H. Clark and the Carrico brothers from Gold Hill (Nez Perce County Mining Notices, Book P:254,255). Many of the rest were located by homesteaders of the upper Palouse valley, like D. C. Tribble and John G. Hoskins, Sr., and businessmen in Palouse City. The latter included Cy Roberts, miner; Jacob Slaght, blacksmith; John Banks, real estate; E. J. Cheney, treasurer of the Palouse Mercantile Company; J. C. Northrup, real estate; George Henwood, postmaster and dentist; E. H. Orcutt, editor of the newspaper Boomerang and a claims collector; Daniel Preffer, City Hotel owner; C. H. Farnsworth, livery stable owner; W. S. Reider, drayman at the Black Hawk stables, and Frank Truett, druggist (Bensel 1891; Boomerang 4 July, 1883; Palouse News 5 June, 1884). Though the locations of many of the drainages named are now forgotten, the rush seems to have been to the well-known sites between Poorman Creek and the North Fork Palouse River

above White Pine Gulch.

The progress of the rush was closely followed by the newly established Palouse News, especially since its managing editor and publisher, S. G. McMillin, was the district recorder, and the standard location notices for the miners were probably printed on the News press. The following items were scattered in its second issue, dated 5 June, 1884 (pp. 2-3):

> More confidence is being expressed everyday of the quality of the quartz ledges of the Upper Palouse, by men who are now opening up the ledges that have already been discovered; and quite a company are now in the [?] prospecting.
>
> Several years ago $16,000 was taken out of a placer claim a little below the quartz ledges. Old and experienced miners say that the indications are better than they have seen at the Coeur d'Alene mines and that it will be but a short time when there will be a good camp in that section.
>
> The Hoodoo Mines are creating more excitement every week. Everything looks favorable for a general "boom" in a short time.
>
> W. S. Reider has been up the river prospecting.
>
> Everyday the stage from Moscow comes loaded with passengers boung for the mines.

The claim notices themselves reveal the extent to which this area had already been exploited. The Palouse Mining Company claims were mapped by referring to the "Hoodoo and Sowbelly cabins." Their claim to water rights stated, "Commencing at this stake and running along the line of the old Hoodoo Ditch as far as it runs. Thence along the mountain side to the Poorman Creek. We claim 2500...of water for mining purposes" (Nez Perce County Mining Notices, Book P:255). Other notices also recognized the advantages of reclaiming old ditch systems by claiming the water rights above gulch crossings.

This rush also prompted the most extensive filing for water rights in the Hoodoo Mining District (Nez Perce County Water Rights, Section D, Book 1:16-34). Three major ditch systems are indicated by filings before the end of the season in 1884. The Palouse Mining Company planned a ditch

running two miles to end 80 rods below Sowbelly Gulch. Three experienced Hoodoo miners led by C. C. Roberts claimed 200 miner's inches of water under four inches pressure from Hoodoo Gulch to be ditched around the hill to their Baboon and Borehead claims. Finally, a 400 inches capacity ditch was to begin in Quartz Gulch and convey water along the hill to Tommy's Gulch. Then, midway through season in 1885, more filings were made to diverge water into Poorman Creek by ditches of 1500 inches, 1000 inches, and 500 inches capacity. Interests on the ditch system begun one and one-half miles up White Pine Gulch to feed the bench placers on Bullion Hill, northeast of California Gulch, were divided amongst the locators, who included C. C. Roberts, George M. Wilson, and B. H. and Charles Laughlin. (See also, Nez Perce County Bills of Sale, Volume 28 for the particulars of transfers of interests.)

The flush of excitement aroused in the summer of 1884 carried on through the winter. Any snowfall that year seems to have made little difference to prospecting activity. It continued heavy through December, and there were even nine claims discovered in January and February 1885. Of these, one was located by Oliver Hazard Perry Beagle, the developer of the Beagle Block in Moscow (Nez Perce County Mining Notices, Book N:30). It is notable that several of the winter prospecting ventures took place on Grizzle Bar and close to the Grizzle cabin, all comfortably near to the amenities offered at Grizzle Camp.

General interest in working Hoodoo placers continued through the two following seasons as well, but with diminished enthusiasm. In 1886, 20 claims were located, primarily during September and October. In 1887, the newly located claims were only 17 in number. Most of these claims appear to be speculations by the well-known prospectors and mining men for sale

to Chinese. John Wood, Robert Dixon, Charles Reitz, B. H. and Charles Laughlin, Frank Points, T. H. Wadsworth, A. A. and F. C. Smith, John Banks, and Chris Stanull all deeded mining ground to Chinese at the rate of about $100 for 20 acres. The claims were in the vicinity of Cleveland and Banks Gulches. Inevitably, the legal documentation was handled by Palouse City brokers, A. A. Kincaid, J. G. Powers, J. W. Breeding, and J. H. Wiley (Nez Perce County Deeds, Book N:164-209). The remainder of the claims were probably prospected after a disappointing season's clean-up or for extra wages after the harvests.

It was in the fall of 1886 that W. G. Connor began a thirty-year association with the Hoodoo Mining District, acting throughout much of that period as the Deputy Mining Recorder. The first record of his activiites is an advertisement in the Palouse Boomerang (4 July, 1883:1) for Connor as Justice of the Peace, in and for Palouse Bridge precinct, Idaho Territory. "All business placed in my hands will receive prompt attention. Collections solicited." He began registering mining claims in 1885 as the recorder on Last Chance Creek (Nez Perce County Mining Notices, Book N:134,136,200). From then on, his filings with the county precisely transfer information he first noted in the Hoodoo Mining Record, books of from 100 to 200 pages maintained at the district. (The existence or present whereabouts of this invaluable record are unknown.) He or his parents were Irish immigrants, and his sister Kate married Porter D. Sardam, who a farmer on one-half section five miles east of Palouse City (Western Historical Publishers 1903:705).

General population and economic growth in the Palouse River valley was rapid after 1880. With a population of about 200 in 1882, Palouse City literally moved its business district from the hill above the river

to the bottomland along the banks (Gilbert 1882:443). Water power drove the thriving grain mills, but it was the sawmills which became the most important commercial enterprise. The thickly forested slopes near the river provided timber for great log drives down the Palouse as far as Colfax. The booming lumber industry made Palouse City one of the most important towns in the Washington Territory, and by 1891 the population had grown to 1200, with three sawmills employing 200 men (Bensel 1891:11; Palouse News 5 May, 1893:1-3). The construction of the Northern Pacific Railraod to Palouse City in 1888 provided the long-awaited economical access to markets which had been the major obstacle to an end of the pioneer period (Livingston-Little 1965:80). Prior to rail shipping, agricultural products were wagon-freighted 27 miles to the Almota bar to await river transport. "The question of transportation was the paramount issue in the minds of all the people from 1872 to 1886...Now all the freight had to be transferred over two portages in the Columbia River and often were tied up due to slush ice on the Snake River...Nobody had any money in that period and it is no wonder that many businesses went to the wall..." (Palouse Town and Country Study Program 1962:90).

Without exception the entrepreneurs and commercial operators who survived the instabilities of the pioneer period also held interests in Hoodoo placer mines. Those men already mentioned who were among the earliest arrivals; Kincaid, Powers, Wiley, Farnsworth, Preffer, Northrup, and F. M. Smith; were able to expand their control of the capital economy by diversified holdings and interlocking directorships in real estate, insurance, banking, mercantile, and livery and transport. John Malhern, former saloonkeeper, became city marshal, and Frank Maupin, notary, became city clerk and a partner in the firm of Maupin and Right (lawyers?)

(Bensel 1891:27; Palouse Town and Country Study Program 1962:59). Later arrivals who joined the business community also subscribed to this pattern. J. K. McCornack, for instance, was a partner in a claim "on hill between Hoodoo Gulch and Greenhorn about ½ mile from Palouse River" (Latah County Mining Notices, Book 1:397). He was also cashier at the Security State Bank and an insurance agent representing companies headquartered in San Francisco, London, Philadelphia, Hamburg, Hartford, and Portland. Another example was Adolphus Galland, owner of Galland Brothers, grain dealers, and the Galland Trading Company, retailers in groceries, dry goods, clothing, boots, and gents' furnishings, who held a claim on the North Fork Palouse River in 1893 (Latah County Mining Notices, Book 2:69-77).

Also conducting business in Palouse City were several settlers from the upper Palouse valley. Henry Bull, like many farmers with produce for sale, purchased butter wraps from the Palouse Republic printer (Palouse Republic Accounts Book 1916). D. C. "Dud" Tribble; a well-known prospector in Rock Creek, Hatter Creek, and Turnbow Gulch; was also in a furniture store partnership, Lamb and Tribble, with J. C. Lamb (Bensel 1891:26,34; Bull 1945:7). When in Palouse City, he gave his address as boarder at the Swarts House.

The Swarts House must have catered to miners and mining speculators and served as their meeting place (in a dining room or saloon?)(Fig. 1). In 1891, many of those with claims in the Hoodoo Mining District were boarders there. Those willing to labor over a sluice were placed in close contact with those willing to provide a grubstake. John English, laborer, Emery S. Brents, lumberman, John Butzow, carpenter, and F. M. Martin, bookkeeper; would have had contact with Harry Rice, part owner in the Ihrig and Rice butcher shop, George H. Sheldon, foreman of the Palouse

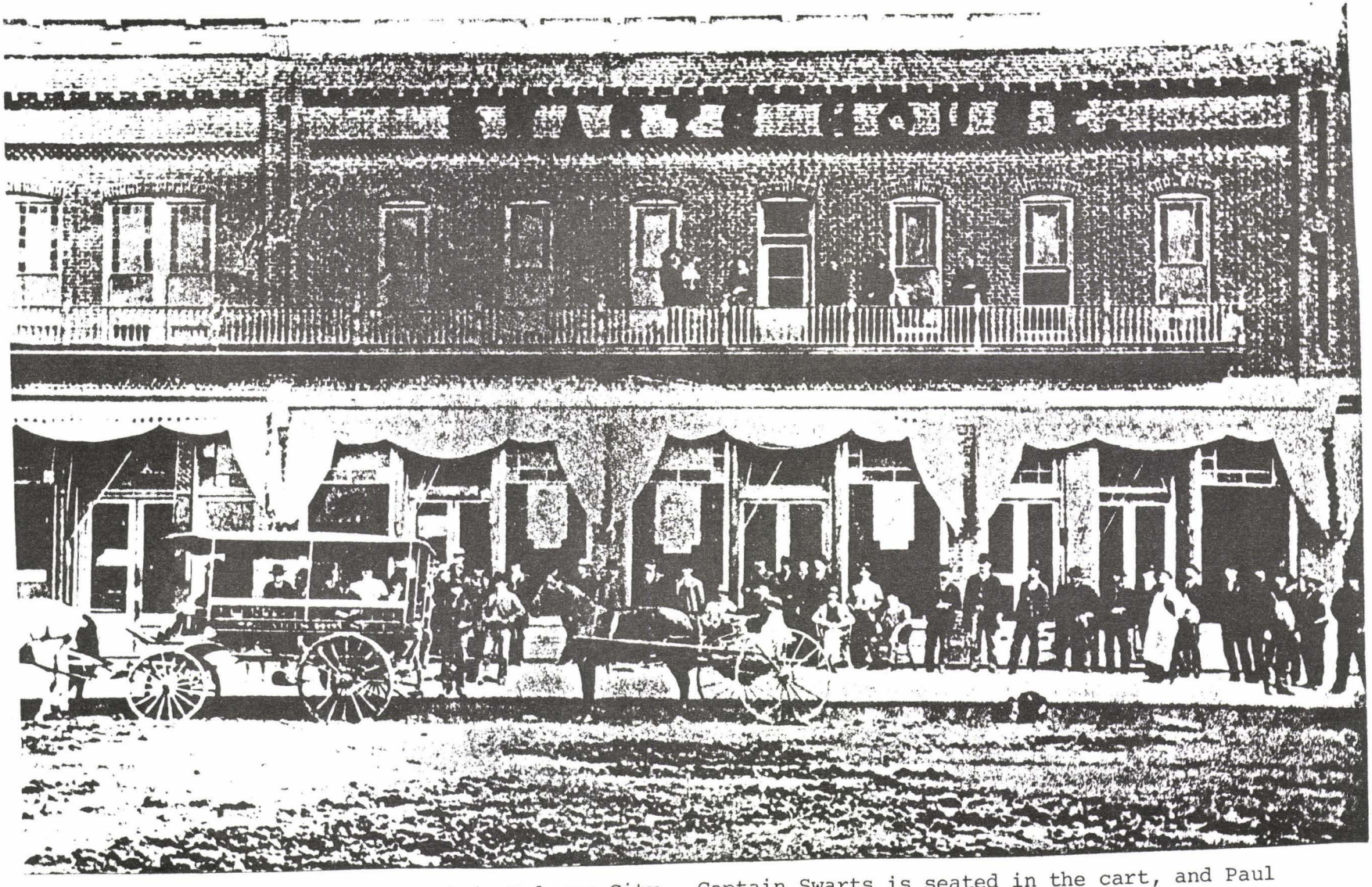


Fig. 1. The Swarts House hotel in Palouse City. Captain Swarts is seated in the cart, and Paul Bockmier, Sr. is standing on the boardwalk, thirteenth from the right.

News, and miners George W. Speake, William King, and D. C. Tribble. The active mining promoter W. F. Chalenor was manager of the C. and C. Milling Company and warehouse near the Northern Pacific Railroad depot. Though not a Swarts House resident, J. C. Northrup housed his business, Skeels & Northrup, just across Main Street opposite the hotel (Bensel 1891:23). He was a long-time prospector who held extensive mining interests in both the Hoodoo and Gold Hill districts besides the Palouse City businesses of Gemmil and Company (with liveryman C. H. Farnsworth), the Blackhawk Livery Stable, and Skeels & Northrup (blacksmiths, machinists, and wagonmakers) (Wiley 1915:11).

The Swarts House was a brick hotel with 50 rooms which was built after the destructive 1888 fire in Palouse City (Bensel 1891:53). The building was located on Main Street at the east end of town. Its owner was A. J. Swarts, who had originally homesteaded near the mouth of Meadow Creek in the upper Palouse valley. He had purchased the W. F. Beyersdorf ranch but moved to Palouse City to run the hotel until 1894. Afterward, it became the Northern Hotel (Palouse Republic 12 December, 1917:10).

The general enthusiasm for placer mining in the Hoodoo district diminished after 1887, but new settlements at Freeze, Starner (present-day Hampton), Cove, Chambers Flat, and Woodfell kept up Palouse City development interest for the upper Palouse valley. E. H. Orcutt, whose Boomerang newspaper closed, reported that as postmaster he expected to start a new mail route up river (Palouse News 1 January, 1890:5). The importance of good roads to Cove and Deep Creek was stressed to attract trade to Palouse (Palouse News 8 January, 1892:2). The announcement by a Northern Pacific spokesman of a possible railroad extension through Palouse, Starner, and across the divide to the new Ruby Creek mines

prompted a call for more minerals development (Palouse News 2 May, 1892:1). Finally, an irregular letter to the Palouse News called "Hoodoo Nuggets" transmitted tidings of progress and conditions at the mines. Though signed anonymously, "Hoodoo", it may have been written by someone such as Frank Points, "a cultured Virginia gentleman" and long-time miner (Kincaid 1934:14). It contained a homely blend of anecdotes, weather reports, promotions, and placering technology. This tradition of newspaper mining promotions was begun with the Golden Age in Lewiston in 1862, and Palouse City editors Orcutt and S. G. McMillin were local boosters (Hymowech 1968:3).

By this time, agriculture and lumbering were the most important industries in the Palouse. However, first listed "among the other resources" touted by the region's boosters were the mines (Palouse News 5 May, 1893:3). One brochure claimed that Palouse City was the market for about $60,000 of gold dust per year (Northern Pacific Railroad Company 1889:24). J. G. Powers was buying about $40,000 of gold dust per year, while J. H. Wiley estimated his purchases to be about $15,000 of gold dust per year. This did not constitute a claim for being a minerals center, but rather that the Palouse River and tributaries provided regular working wages, if nothing more.

In 1893, new strikes brought another rush for Hoodoo gold. After patient labor all spring and summer on a claim he had staked the previous fall, John K. Truax "made a clean-up of nearly $100 off a piece of ground 9x16 feet" (Palouse News 25 August, 1893:3). Though many were still looking for the source of Hoodoo gold, Truax just said that on his claim on the North Fork about a mile above White Pine Gulch he "...was looking for the place where some of it stopped in paying quantities...." There is

no indication that it was rich enough to spark a general excitement, and in any case unusual numbers of would-be miners had been in the district all season. In fact, extant newspaper stories report intensive prospecting activity all over the county, with hundreds of men ("unprecedented numbers") looking for ledges and sending out samples for assay. One stated that it was Dud Tribble's strike at the head of Meadow Creek which aroused the fever (Palouse News 30 June, 1893:4; 11 August, 1893:3). However, severe economic depression had also hit the Palouse in the wake of the Panic of 1893. The magnitude of the disaster was presaged by the collapse of the McConnell—Maquire Company in Moscow, the region's largest general mercantile house (David 1979:20,42,80). When the year's harvest was destroyed by unseasonable floods, it was certain that more than the usual numbers of men would be seeking wages (about $2 per day) in the placer mines (Munson 1978:134-135; Tribble, tape 1, side A, in 0-100). Hard currency was so scarce that one Palouse City merchant sent his son in a light wagon to pay high prices for gold from Palouse River miners (Milbert n.d.:3).

Perhaps for the first time in the Hoodoo Mining District, the 1893 rush attracted an extensive speculative capital interest by a company which wanted to import machinery to placer mine a considerable distance of the deep river gravels. Previous associations of businessmen, investors, and miners had developed one or two claims of up to the maximum 160 acres each, but this new conglomerate had a considerably larger purpose. Though little is known of the details of the venture or its financial rewards, its members from Minneapolis and Spokane seem to have been represented by W. H. and J. N. Muncy (or "Muncey") from Tekoa (Palouse News 15 September, 1893:5). They located and bonded about four miles of the North Fork and

Palouse River as far down as Bluejacket Creek, and they appear to have planned to use seven men operating a dredge to mine the bottom (Latah County Mining Notices, Book 2:131-139). By this time, it was clear to experienced Hoodoo miners that any profitable operation would require working the gravels to a depth of at least 18 feet and constructing an access road at least five miles long from Grizzle Camp. The investment in machinery alone was to be $26,000, but the company seems to have placed their confidence in several hedges by also acquiring rights to Columbia and Snake river bars (Whitman County Mining Claims, Record A:48-49,88,106-107). Whatever their eventual success, however, by 1898 the road up the Palouse River had only reached the Strychnine Divide (General Land Office map, T42N, R2W, BM, R. Bonser, Report 2053, 10 May, 1900).

A more common method at this time for combining labor to placer mine Hoodoo claims was for homestead families to take up pick and shovel after the harvest (Milbert 1975:84-86). This was especially so for settlers in the upper Palouse valley east of Deep Creek. For them, the only real cash crop was timothy hay, and their homesteads had first to be cleared of the heavy timber (Tribble, tape 1, side A, in 100-150). Most of these hopefuls didn't "make it" unless they were successful in a variety of survival projects (Butterfield, tape 1, side A, in 300-400). Many of the early families, such as Chambers, Cochrane, Graham, Blake, Layton, and Hoskins, therefore located placer claims in the nearby creeks. Eventually, the most successful family enterprise grew out of John Truax's strike. The Taylors, also from the Garfield-Farmington area, were partners with the Truax's, and their prospecting efforts led to the large Mountain Gulch Mining and Milling Company. That September, a Taylor brought his wife and children to the mines to spend the remainder of the season (Palouse

News 25 August, 1893:3).

Though the numbers of claims annually registered lessened after the new strikes' excitement, they remained at about two-thirds the 1893 level through 1897. The heart of the district continued to be worked, but most of the interest was in Strychnine Creek and its tributaries and the virgin ground above White Pine Gulch on the North Fork Palouse River. The ditch system of White Pine Gulch, known as "the Old China Ditch", was reopened to mine China Hill about one-half mile along the rim of the west slope (Latah County Mining Notices, Book 2:203). John English, E. K. Parker, H. G. Rice, Truax, and the Taylor brothers were prospecting Moscow Gulch and northward, while old-timers Pat Flynn, E. S. Brents, C. W. Sanderson, and Frank Taylor joined those working the Strychnine area.

These two areas are also most frequently associated with Chinese mines. Fact or rumor regarding the richness of the Chinese diggings, the increasing nationwide economic depression, and the large population of whites prospecting the Hoodoos may have all combined to force the Chinese from these boom areas. That incidents were occuring, and some were opposed to such treatment seems clear from a newspaper report:

> Our camp has been decidedly healthy this winter with the exception of a little nausea of such duration that it finally disgorged the jumpers of the Chinese claims; since when there has been no more rumbling of a disordered digestion.... [Palouse News 2 March, 1892:5).

The newspapers also carried in their "boilerplate" sections stories of anti-Chinese violence in San Francisco, Los Angeles, and Seattle, especially during congressional debate on the Chinese Exclusionary Acts (e.g. Moscow Mirror 16 October, 1886). A major concern was voiced over the alleged smuggling of Chinese into the United States through the Colville reservation, and its effect on the labor market. Under the

headline, "Shake the Chinese" one story read:

> Business is dull, and many white people have no work, yet the Chinese laundries are busy. There is a good white laundry in town which deserves liberal patronage, because only first class work is done. People should remember Mrs. Beste when in need of laundry work, and if anyone is idle and has to go hungry let it be a Chinaman [Palouse Republican 23 October, 1893:2].

In its random notes, another reported, "As a herder of Chinamen constable R. M. Callison made a decided hit" (Palouse News 15 April, 1892).

By the turn of the century, the Chinese presence in the Hoodoo district was all but ended. The daughter of the well-known packer and postmaster of Woodfell, Jake Johnson, knew at least two Chinese miners. Her father had packed supplies to them on Sunday, and they vied to invite him for dinner (Butterfield, tape 1, side A, in 170-200).

In June 1898, John and Charles Taylor located their Mother Lode and Mother Lode Extension claims. These were to become the heart of the only extensive gold lode development in the Hoodoo Mining District (Latah County Mining Notices, Book 3:289,293). This was the Mountain Gulch Group. By the middle of the season in 1899, the Taylors had erected a mill, and another rush to the Hoodoos was on (Latah County Mining Notices, Book 3:367-368). [Again, it is difficult to say whether the richness of this strike or the influence of the world's last great gold rush into the Canadian Yukon sparked more excitement. Pierre Berton's Klondike Fever (1967) provides an impressive account of the extent to which the nationwide imagination had been gripped by the '98'ers.] New claims were made to the land all around the Taylors', up and down Mountain, Moscow, and Eldorado Gulches, and northeastward to the prominence which became known as Gold Hill. But the rush was by no means restricted to the upper North Fork Palouse River. Many of those with years of experience in the

Hoodoos were locating the traditional areas: E. S. Brents and John and Frank Maupin were at the mouth of Poorman Creek; F. O. Slaght, Ed Graham, Racy Roberts, and George Henwood were on the Baby Grand divide at the head of Slate Creek; W. G. Connor was at Quartz Gulch; and J. K. Truax was on the divide above old Hoodoo Gulch (Latah County Mining Notices, Book 3:353-355,369,387; Book 4:44).

In an effort to open new ground in the upper part of Poorman Creek A. J. Choat, of Palouse City, and the Hemingways located on Rocker Gulch and Hemingway Gulch (Latah County Mining Notices, Book 3:295-296,354,390; Nez Perce County Deeds, Book 43:485). The Hemingways, E. L. and his son Bertram, may be good examples of the effects of gold fever. E. L. Hemingway was born in New York but headed west at age 14. He worked on the toll road and was a merchant at The Dalles, Oregon. He raised stock along the John Day River. In 1860, he rushed to the Cariboo mines of the Kootenai district, and he had a narrow escape from Indians at Cayuse Station during the Bannack War in 1878. In 1879, he secured title to a Snake River bar which became known as Hemingway's Landing (present-day Illia). It was the only accessible point to the river for 20 miles, and in addition to a warehouse, store, orchards, and a post office there was a daily stage connection to Dayton and Colfax, Washington Territory (Gilbert 1882:18,427). Being located on a transportation line, he undoubtedly heard of the various Hoodoo rushes. Indeed, the Muncys and their partners had located one of their hedge claims directly across the Snake River from Illia in April 1893 (Whitman County Mining Claims, Record A:48-49). As a placer miner in the Hoodoos in 1898, he was 55 years old.

The late 1890s saw the rise in importance of mining and minerals

promoters and professional prospectors who located tracts for potential development. To be sure, men like Jesse Bishop, J. C. Northrup, and the Taylor brothers were among the early arrivals on the Palouse who gradually evolved their minerals and real estate interests. However, with industries, especially logging, becoming stable enough to provide a regular paycheck to employees and the increased capital expenditure necessary to profitably mine beyond the shallow surface deposits, incorporated non-assessable joint stock ventures began to take a larger role in the Hoodoo Mining District. These companies generally sought wide popular investment, being authorized to sell enormous numbers of shares (often 1,000,000 to 1,500,000 under the initial articles) at "cookie jar" rates (anywhere from 2¢ to $5.00 per share, with $1 being the most frequent). This is in contrast to more sound propositions whose organizers wished to maintain close control of developments (i.e. the Palouse City Bank and Bank of Farmington were both capitalized in 1887 for $30,000 at $100 per share)(Whitman County Articles of Incorporation, Book 1, article nos. 1,15,17,99,100,139,208, 240,322,412,459).

Often minerals exploration firms from the Midwest or East operated through a local agent who located, bought, and resold claims or simply relocated potential ground after the original locator had failed to meet the year's assessment work requirements. These men were known in the districts as "sharpers" (Milbert 1975:16-17). But miners also recognized that the promoters were both employers and attracters of investments. Promoters believed in themselves, and often deals were struck "without any showing whatever" (Gilder, tape 68.1:20; Milbert 1975:96-98).

One of the best known Palouse mining promoters was Paul Bockmier, Sr. (Milbert n.d.:29). Previously active on Gold Hill north of Princeton, he

claimed that many good prospects went begging because "the old timers wanted too much money for them to induce capital to come in and develop them" (Bockmier 1891-1977:Box 1, Folder 10).

Interest in the Hoodoo Mining District continued to be varied and general after the turn of the century. The establishment of the Potlatch Lumber Company at Potlatch, Idaho, in 1905, however, probably consumed all the excess labor force and provided a local market for garden produce which ended the annual post-harvest placering migration (Kincaid 1934:18). The mines were then essentially the province of the mining interests and those who considered themselves miners. The most active and identifiable groups were the Taylors' Mountain Gulch Mining and Milling Company, J. C. Northrup and his varied concerns, and the Blue River Mining Company. The latter operation was primarily concerned with the Mountain Gulch area, and its principal prospectors were W. J. and T. J. Demorest of Clarkston and Spokane. Upon being organized in 1905, their stated purpose was rather far-reaching:

> ...buy, sell, lease, operate and develope mining properties,...real estate, water rights...and to locate each and all...to buy, sell, lease, operate and develope smelting, concentrating, and milling plants, railways, and steamers and steamship lines; to buy and sell ores... to build, buy, sell, lease, operate and develope wagon roads and tramways; to erect and lease buildings, and to do and carry on a general merchandising business, mining, milling and sawmilling business and boarding and lodging house business."
>
> To be active in Washington, Oregon, Idaho, Montana, and other states and British Columbia [Whitman County Articles of Incorporation, Book 1, article no. 99].

Such circumscriptive statements may have been necessary in minerals development, since in 1900 and 1903, conflicting claims boundaries between Northrup and the Taylors initiated a series of registration battles over the Mountain Gulch fields. In January 1904, the Taylors

refiled their locations, emphasizing that their company had been duly incorporated in 1900 (Latah County Mining Notices, Book 3:595-604,613-616). Northrup, however, claimed to have had his amended location notices up first and insisted that the Taylors had failed to adhere to the "prudent man rule" by doing their annual assessment work (Charles G. Taylor to J. C. Lawrence 12 December, 1904, in Lawrence 1904-1905). The issue was resolved by a survey plat of the Mountain Gulch Group, but by then Northrup must have been far more interested in his Mizpah claims (General Land Office Mineral Survey No. 2425, 18 January, 1909).

The historically prominent Mizpah Creek copper mines are said to have been relocated by J. C. Northrup about 1900, and the Merger Mining Company, Ltd., was organized to develop them (Hubbard 1957:8; Wiley 1915:12). The available documentation, however, shows no registrations by Northrup on Racy Roberts' claims until 1904, and no mining company incorporation by Northrup and his Palouse City associates until the organization of the Mizpah Copper Mining Company, Ltd., in 1906 (Latah County Mining Notices, Book 3:636-638; Whitman County Articles of Incorporation, Book 1, article no. 139). In October 1905 and April 1906, the initial prospects were perfected, and the effort to develop the properties was begun with hopes pinned on the Hecla and Chancellor ledges (Latah County Mining Notices, Book 4:43,71-79). Northrup's prominent business partners included W. F. Chalenor, C. E. Fredrick, W. M. McCroskey, W. R. Belvail, and George N. Lamphere.

After at least two reorganizations, the first ore was finally shipped in 1916 by the Enterprise Mining Company, of which J. C. and E. R. Northrup were resident managers (Northwest Mining Truth 15 December, 1916:3). The ore was hauled by wagon to the railroad depot at Harvard,

Idaho. Five tunnels, totaling 1550 ft. with 375 ft. of drifts, had been cut, and the equipment consisted of a 60-horse gas engine, 12x14 Fairbanks-Morse air compressor, machine drills, an electric light system, tools, ore cars, steel rails, air pipes, and buildings (Clayton 1934:2; Norman 1918). Development continued through 1919, with the most productive year being 1918, when about 79,000 pounds of copper was smelted (Hubbard 1957:7). They tried to overcome the high freight costs of unprocessed ore in 1920, and lumber for a mill was hauled in over the snow (Northwest Mining Truth 3 January, 1920). Production closed though, and in only three other years, 1924, 1925, and 1929, was some copper obtained. Subsequently, the Mizpah claims have been held by the Columbia Mines Company of Spokane.

Other locals also tried to mine copper on Mizpah Creek. C. W. Sanderson, T. P. Jones (Potlatch Company's woods superintendent), Hugh Henry (Deary Townsite Company manager), and Ray Palmer started the Latah Copper Mining Company, Ltd., of Bovill (Miller 1972:90,111; Norman 1918; Latah County Mining Notices, Book 4:131-138). They hired five or six men, drove three tunnels, built a cabin, blacksmith shop, and powerhouse, and had a hoist boiler, two Burleigh drills, and a small compressor. They shipped one railroad carload of hand-picked ore, hauled out with a Model T truck to the depot at one ton per trip (Sanderson, tape 167.1:4-5, tape 167.3:18-19). The smelter operators told them that the ore ran 5% to the ton and was not worth handling. They made no money but had to pay the freight charges.

Developers continued interest in the Mountain Gulch area, and claim notices were posted, especially on Gold Hill above the North Fork Palouse River, on behalf of the Star Crescent Mining Company, the Western Mining

Company, and the Progressive Mining Company, the latter being registered in Multnomah County, Oregon, and represented by J. D. Connor. The Taylor mine was reported as showing gold running $15 to $20 to the ton (Norman 1918). It possessed 600 ft. of tunnels and 125 ft. of incline shafts, with a card table, boiler, engine, and two-stamp mill (which may have been replaced in 1908 by a Huntington roller mill and Blacke crusher)(Rickard 1897:265; Soper 1917:162; United States Geological Survey 1912:575). The smaller independent miners, though fewer in number, also continued to recombine for communal work on their diggings. F. O. and J. O. Slaght, E. K. Parker, V. P. Wiesenthal, Pat Flynn, the Steffens brothers, E. S. Brents, A. J. Breeding, and C. W. Sanderson were all active along Poorman Creek and the North Fork Palouse River.

After 1912, the amount of placer gold recorded produced in Latah County (the Hoodoo district always being most significant) fell considerably (Hubbard 1957:7,8). Except for the years 1922 and 1923, production reamined negligible until 1933. By then, the Great Depression was so widely felt that the armies of unemployed again turned to placer mining for wages in the Hoodoo district. To the resident miners in the districts, these newcomers were known as "Depression miners" or "overnighters" (Milbert 1975:89). This time, however, there was no lucky strike followed by a romantic rush to the hills. As one more idea for putting men back to work, the Northwest Mining Association held a placer mining school on the headwaters of the Palouse River (Northwest Mining Truth 16 June, 1932:3). About 2000 attended and heard speakers W. W. Staley, of the University of Idaho and Idaho Bureau of Mines and Geology, and Paul Bockmier, Palouse mining promoter. School of Mines Dean J. W. Finch stated dismally that one in ten prospectors would make more than wages,

and only one in a hundred would find commercially exploitable ground.

Nonetheless, the Northwest Mining Association, based on the success of the first effort, held several more placering schools around Washington state and estimated that 5000 people attended them. Further, Staley was in the field visiting prospectors, and Finch estimated that 3000 men had gone to the hills for gold. Staley's manual, Elementary Methods of Placer Mining (1932), was reprinted in five editions between May 1931 and June 1932. In the Hoodoo district, the White Pine, Moscow, and Eldorado Gulch areas were most frequently registered as placer locations. If Finch's estimate of the mining population is nearly correct, the proportion attracted to the Hoodoo district from 1933 to 1938 produced only about as much gold as had been taken out during the declining years between 1906 and 1912 (Hubbard 1957:7). They primarily used hand methods to move gravel, but a distinguishing characteristic was the application of individual ingenuity and knowledge of mechanics to develop portable, powered gold-saving machines (Frank Milbert 1980:personal communication).

The last major effort and largest single operation to exploit alluvial gold deposits in the Hoodoo district was the dredging of the river bottoms by Northwest Goldfields, Inc., between 1939 and 1942. Eventually, about five miles of river bed was turned over, from the mouth of Moscow Gulch on the North Fork Palouse River to just above the mouth of Bluejacket Creek on the main Palouse River. The following sequence of events was given in a late 1950s summary of the mineral resources of Latah County:

> The Northwest Goldfields, Inc., of which Mr. [L. J.] Burrows [of Spokane] was president, erected a four and one-half foot bucket dredge on the North Fork of the Palouse River in the early part of 1940. The dredge was set up near the mouth of White Pine Creek in the upper part of the North

> Fork. A considerable amount of placer mining at this location had left a depression which was easily converted into a pond for flotation. Dredging started June 1, 1940 and was continued almost without interruption until October 15, 1942, when Limitation Order L-208 issued by the War Production Board closed down the operation for the duration of the war. During this period of operation, the dredge excavated the North Fork river bed from White Pine Creek to the confluence of the North Fork and the Palouse, a distance of approximately two and one-quarter miles, and moved a total of 2,900,000 cubic yards of material. The gravel ranged from 10 feet to 25 feet in depth with an average depth of about 18 feet. Bedrock, except for local spots, was decomposed enough to allow digging of the upper two feet or so with the bucket line. An average of 18 inches of bedrock was removed in the dredging operation.
>
> The gold content of the gravel varied particularly in areas where the dredge re-worked old placer tailings; however, the average value was about $0.18 a cubic yard. Operation costs averaged $0.07224 a cubic yard before depletion and depreciation; labor accounted for $0.03245 of this amount and material for $0.03979. Clearing cost about $0.01 a cubic yard. These averages would have to be revised upward in estimating present day costs [Hubbard 1957:10-11].

The extent to which obstacles must have forestalled the large-scale introduction of heavy machinery into the Hoodoos is seen in the ordeal during the winter of 1939-1940 when the dredge was trucked piece by piece up the Palouse River road (Milbert n.d.:106-111). The muddy swamps submerged the heavily-loaded vehicles to their flatbeds, and the crew alternately roasted and thawed around a smokey fire at night. Frank Milbert , who was also hired later to maintain the dredge during operations, contracted to haul the machine using A-6 International trucks cabled to Caterpillars.

When the dredge began excavations the next June, it pivoted on a 48-ft. long spud driven into the riverbed and made a cut 80-ft. to 120-ft. wide. By making several passes, a path as much as 600 ft. wide was cleaned. The operations employed 20 men, some of whom were miners who resided in the district, plus timber cutters (Frank Milbert 1980:personal communication).

Though the War Production Board halted the dredge during World War II (Fig. 2), its two 300 horse-power Cummins diesel engines, confiscated for the war effort, were replaced by a 600 horse-power GMC diesel engine. During three months in 1947, the dredge ran again. Afterward, it was leased by Harold Behrens, who operated it for about eight months around White Pine Gulch and the lower portion of Poorman Creek.

Since that time placer mining in the Hoodoo district has been mostly recreational and sporadic. A few old-time miners continued to live along the North Fork Palouse River. One such was Pete Doffner. He had come to the Hoodoos in the 1890s, and after his death the potential value of his claims was mired in probate court for eight years, until 1944 (Abe McGregor Goff 1980:personal communication; Latah County Probate Record, File 2671). Among the last to have been considered a Hoodoo miner, Bill Freeberry died in his cabin on Beagle Gulch in the mid-1960s.

To summarize the chronology and description of events of the Hoodoo Mining District, there are four periods which represent significant developmental changes in placer mining technology and economics. The first, dating from the 1860s through about 1880, is typified by prospecting discoveries and initial efforts to systematically exploit paying ground by hand methods. The first prospectors were probably migrant explorers of the north-south axis along the flanks of the Rocky Mountains who had had some experience in California mines, other Northwest goldfields, or the merchant network supplying miners and settlers. Early connections with the frontier economy were southward toward Lewiston at the Snake and Clearwater rivers confluence and westward via the new town of Palouse City to Walla Walla.

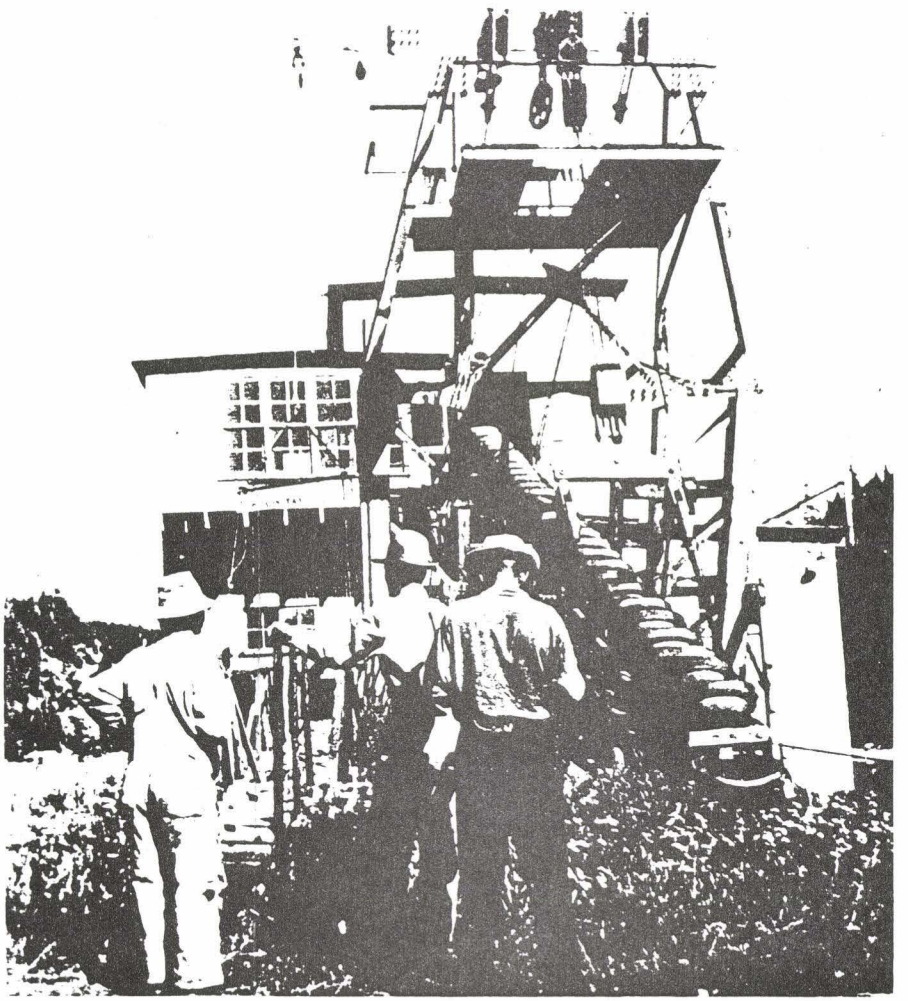


Fig. 2. Abandoned Northwest Goldfields, Inc. bucket dredge. Standing, left to right: Vin West, Walter West, Bill West.

In the second period the capitalists of Palouse City strengthened the economic connection of the Hoodoo Mining District with their town, considering minerals resources along with lumbering and agriculture as central for development (Lever 1901:216; Northern Pacific Railroad Company 1889:24). They invested in expansions of the hydraulic network, which had been proven at least partially successful by Chinese miners. The early homesteaders, especially those of the upper Palouse River valley, also considered the placer mines as an alternate in which to diversify their incomes. After floods and the Panic of 1893, the mines were an essential part of economic recovery and even survival. The second period lasted until the late 1890s, when a combination of factors, chiefly the establishment of a large-scale lumber industry, redirected the labor force.

The third period, from the mid-1890s through about 1920, is typified by the attempt to establish the commercial, industrial value of the Hoodoo Mining District. Various consortia and corporate interests moved to bond or control prospects with the intention of introducing labor-saving machinery that could mine deep placers or hardrock veins. Local, indigenous promoters and experience were part of these efforts. The most successful were the Mountain Gulch Mining and Milling Compnay managed by Charles and John Taylor of Garfield, Washington and the Mizpah copper mine, held by a series of corporations, promoted by J. C. Northrup.

After a hiatus, the fourth period was the result of massive unemployment in the Great Depression. From 1933 through 1938, renewed individual efforts at placer mining produced some gold from the Hoodoo Mining District, but these were abandoned as the general national economy began to recover.

The main cohesive element between all these periods was the body of

men who considered themselves as miners by occupation and members of the Hoodoo Mining District. They typically resided on or near their claims or spent a major portion of the year working them (see the obituary of Stephen DeGrush [Probasco 1980:91]). Some also worked mines in the other local districts, on Gold Hill, Ruby Creek, or Swamp Creek. Among those with the most significant associations were Long Jim Lockridge, Frank Points, W. G. Connor, Cy Roberts, B. Norris Blake, Ed Graham, Stephen DeGrush, John English, C. W. Sanderson, Hans Lund, and the Chambers brothers.

Finally, the dredging of the Palouse River in the early 1940s should be viewed as a distinct event which did not typify the history of placer mining in the Hoodoo district. Certainly its significance should not be underestimated, especially since it is the best evidence of the nature of gold in the district and the most disruptive consequence of the long history of mining activity there.

CULTURE HISTORY OF THE HOODOO MINING DISTRICT

Placer Mining Technology and Terminology

Little in the way of detailed, sequential descriptions of placer mining in the Hoodoo district has been found. Documentary evidence of the techniques used is limited to hydraulic structures named as reference points and water ditches located in mining claim notices or brief seasonal progress reports to be found in contemporary newspapers. Autobiographical accounts and oral histories provide some insight into the later periods. The following outline, then, is a description of the placer technology suggested by these glimpses from the documentary record. Its primary value is as a comparative base from which to view the archaeological remnants, and in order to provide as much of the skeleton of culture history as possible, precise data from the Hoodoo district itself is clearly indicated.

Placer mining is the method used to extract minerals which have been naturally removed from their original geologic matrix and accumulated usually in alluvial deposits. Erosion causes the heavy metals to settle toward the bottoms of deposits and build up in crevices or behind irregularities of the bedrock (Finch 1932:21-23; Staley 1932:2-3). The gold is obtained usually by washing the gravels with water, though in some desert placers the ore was tossed into the air so that wind could winnow the metal dust. Placering methods are very old, having been described as used by ancient Egyptians, by Romans on the shores of Spain, and kept as a well-guarded secret in India, as noted by Herodotus (Wilson 1898:21; Young 1970:4).

The particular methods employed in the gold rushes of northern Idaho, however, were based on the innovations developed in California (Livingston-Little 1965:41; Wells 1963). These innovations drew on Spanish traditions modified to concentrate large amounts of water on particular deposits being worked by individuals or small associations of miners (Young 1970: 58-60,108-111). As the shallow, easier-worked surface diggings were exhausted, miners began to explore other areas of the mining frontier after 1855 and exported their knowledge of placering techniques (Greever 1963: 93,157; Paul 1947:130,143,172-173). After 1863, "At least 20,000 men, contemporary observers estimated, left the state for the diggings in Nevada, Utah, and other areas of the mountain West" (Kelley 1954:351).

Many of these men, such as Captain E. D. Pierce, considered themselves to be prospectors, who located mineral deposits, as opposed to miners, who undertook the development of mining enterprises. Versed in the physical characteristics of the landscape within which mineralization frequently occurs, he could then apply a battery of tests which would indicate what minerals were present and a rough determination of the value it might assay. The tools which a propector carried suggested the variety of tests he could perform. A typical collection would have included a shovel, quartz pick, common pick, geologist's hammer, moil (a kind of small drill), four-pound hammer, prospect pan, dry-washing sheet, sample bag, tube mill, charcoal block, blowpipe, candle, half-skillet hornspoon, hornspoon, magnifying glass, acid bottle, mercury bottle, test tube, and knife gauge (Browne 1868:530-531; Young 1970:29). With this set, a prospector could perform a primitive assay such as blowpipe analysis (Hodges 1970:187-192) that would tell approximately how much mineral could be expected per ton of ore.

Placer gold was sought not only because it could be mined with fewer difficulties in its free-milled form than vein deposits and with relatively little knowledge of geology. In the absence of obvious indications, lode (or vein) deposits could be inferred by searching for "float," particles and scales carried away by water action some distance from the mineralized outcrop (Finch 1932:21-22). The precise form of the particles was indicative of the abrasion experienced as a function of the distance traveled from the point of origin.

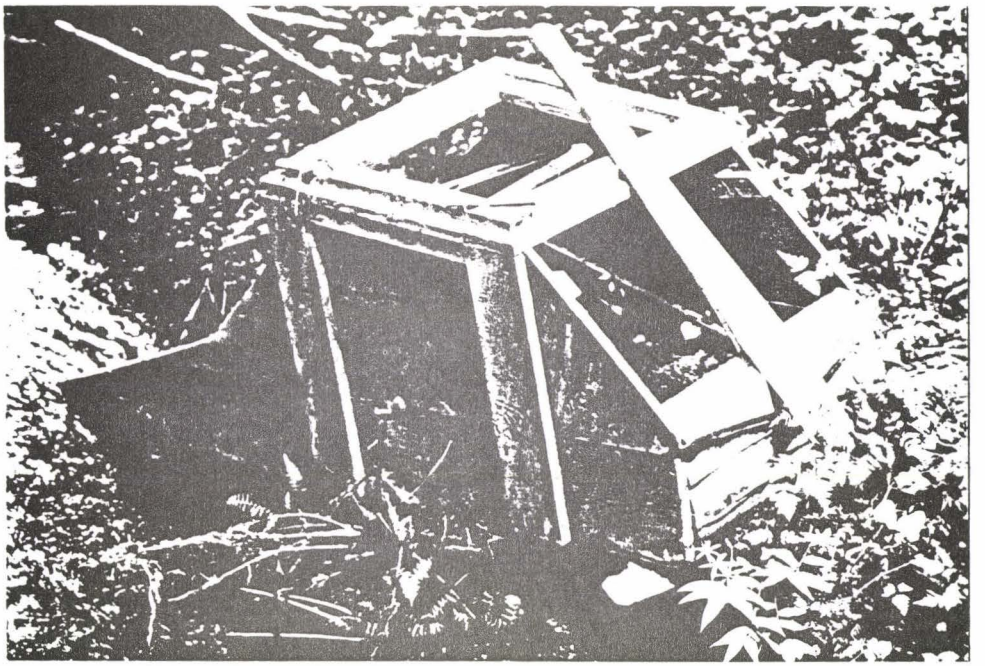
Placer deposits are classified based on the extent to which the gold has been transported and sorted by erosion and the form in which the deposit settles (Staley 1932:2-5). Gold separated from the geologic matrix but not subsequently transported is concentrated in residual placers (Smith 1913:39). Sorted and resorted deposits pertinent to the Hoodoo Mining District are hillside placers, creek placers, gulch placers, and bench placers. The hillside placers are very old and may be the result of geologic uplifts and redirection of the streams which originally laid down the deposits. Creek placers are the best known and are represented by the workings along the North Fork Palouse River and Palouse River bottomlands. They are well-sorted with the gold usually in the bedrock joints and crevices and the deposits generally running parallel with the water flow. Gulch placers are similar to creek placers but are subject to seasonal or subsurface water flow. Bench placers contain gold deposited in benches or terraces during the downward cutting of the stream. They are usually located high up from the valley floor in well-abraded gravels.

A likely prospect was initially inspected by panning or dry washing. Only the very richest claims might have been worked using a pan, since estimates state that with experience the most one could hope to wash in

ten hours was one cubic yard. Even in the early days in California where claims were frequently only 100 square feet, the pan was quickly discarded for more efficient means. Dry washing involved plucking and puffing on a sample spread out on a sheet until only the heaviest fragments remained (Young 1970:22,108-109). In panning, water was used to sort the sample. Using a sheet iron pan with sloping sides and a flat bottom, the material was swirled around, washing the lighter material over the edge (Longridge 1910:181; Wilson 1898:21-24). Since this pan was also used for cooking, most manuals warned against allowing grease to build up on the bottom which made it difficult to retain fine gold in the drag. If the pan had a copper bottom, mercury could be rubbed on it, and fine gold could be retained through amalgamation.

If the deposit appeared to be worth working, any of the placer methods designed to move considerable amounts of gravel could be employed. The rocker was a device only slightly more complicated than the pan, but it allowed profitable working of low-grade gravels by an association of four men. It was generally assumed to handle about five times more gravel per day than a man using a pan. While two men dug, the third dumped dirt and water into the rocker, and the fourth rocked it back and forth (Young 1970:113). If the soil was clayey, the clumps could be fed into a trough along with water that ran into the rocker, which would then break up the mass (Wilson 1898:26).

A rocker was a wooden box with a handle resembling a cradle mounted on a slight incline (Figs. 3, 4, and 5)(Staley 1932:8-9). At the top of the rear half was the hopper, whose bottom was a piece of perforated sheet metal called a grizzly. Its ½-in. holes allowed the ore and water to fall through to a slanted apron, which further broke up the material, caught



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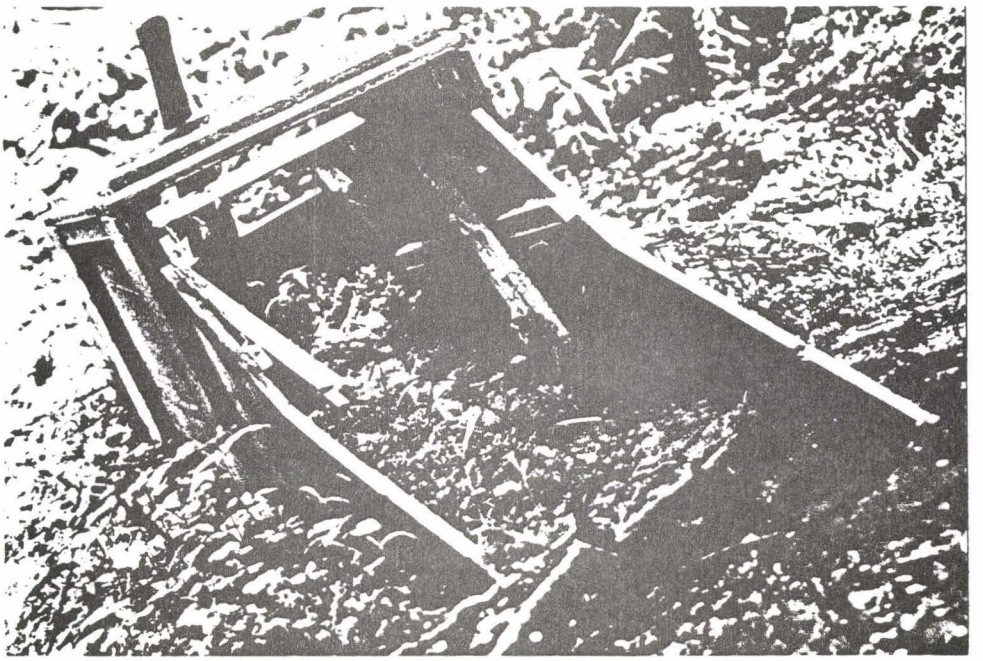

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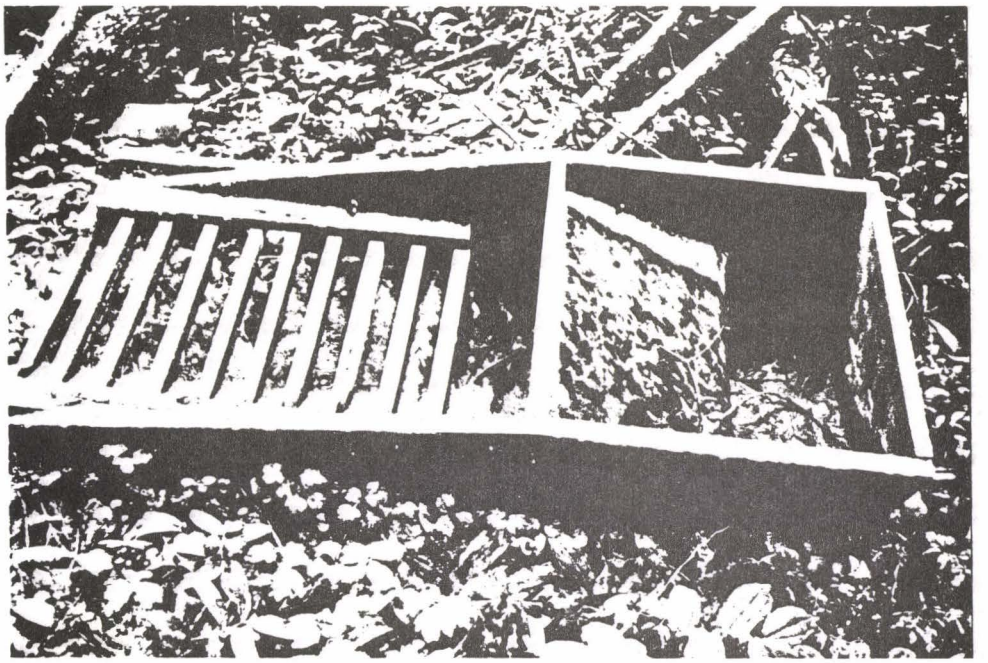
Fig. 3. Rocker from the East Fork Gold Creek. a, Rear view showing grizzly frame and mounted handle. b, Front view showing double inclined aprons and rocker bottom.



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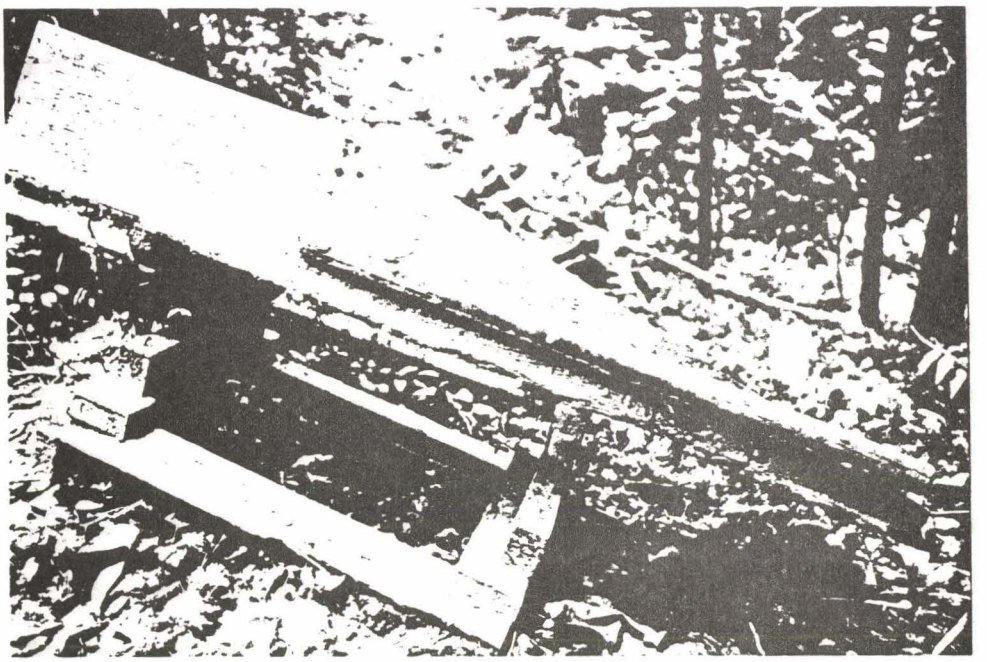

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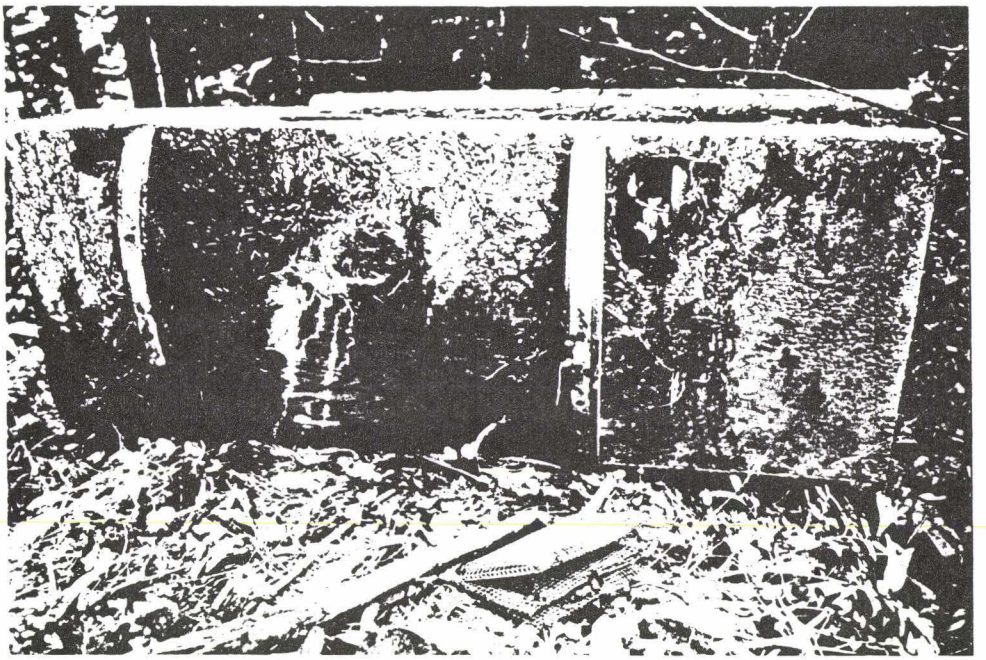
Fig. 4. Rocker from Feature 4, 10-LT-60. a, Top view showing canvas apron, riffle frame, and burlap bottom cover. b, Side view showing the rocker mounted on its inclined platform and the side-mounted handle.



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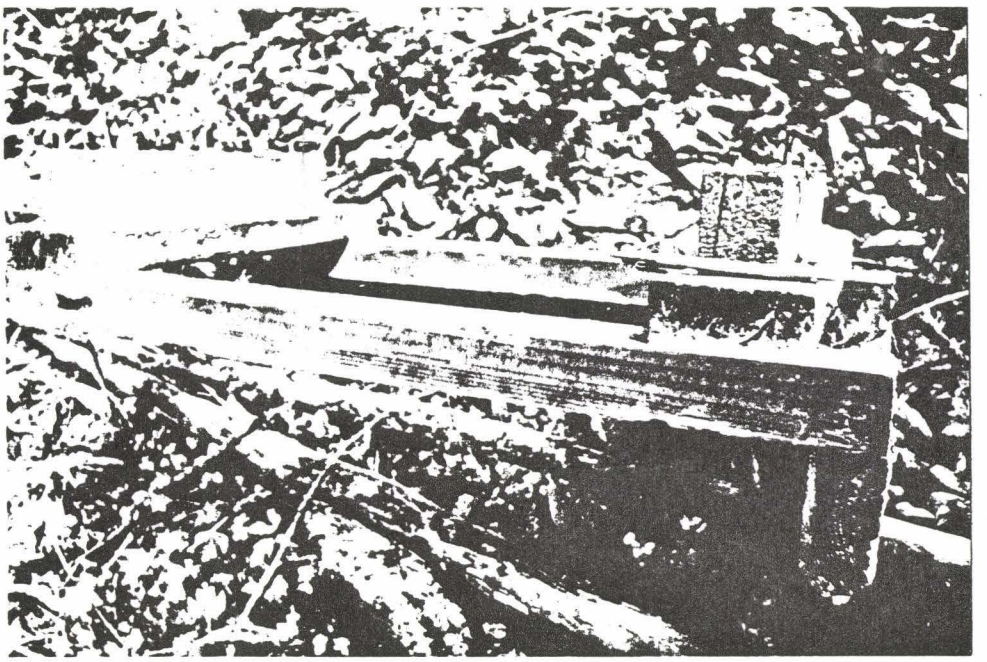

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Fig. 5. Rocker from Feature 4, 10-LT-60. a, Bottom view showing metal strap cladding on rockers and holes into which the platform pivot pegs fit. b, Inclined rocker platform with top, center-mounted pivot pegs.

some gold in its sagging canvas covering, and transported the remainder to the rear of the rocker bottom. The bottom was covered with a piece of carpet or burlap and held a lateral frame of usually square wooden bars called riffles. A short, sharp jerking motion of the rocker and constant flow of sufficient water would then cause the tailings material to wash over the riffles, with the gold and fine sands being caught behind and in the fabric of carpet or burlap (Stumpf 1979:9-11). In the clean-up, the fabric was rinsed in a tub of water, and the gold and sands in back of the riffles removed. These were then further washed in a pan as concentrates. Mercury was also used to create amalgam on the bottom of the rocker, and this required treatment in a retort or had to be squeezed through a canvas bag.

The next, more efficient and probably most widely applied method utilized sluice boxes, or simply "sluices." These functioned in a similar system as the rocker except that the work achieved by the rocking motion was instead accomplished by washing the gravel over a long distance of riffles, in the manner of an artifical creekbed. Sluices were troughs generally 12 to 16 ft. long, one to five feet wide on the bottom, and built from rough planks about one inch thick (Staley 1932:10-11). The bottoms held riffles made from wooden bars, as in a rocker, wooden blocks, angle iron, or simply large heavy boulders depending on the coarseness of the gravels and clays to be broken up (Fig. 6). On Gold Hill for instance, one old sluice box measured three to four feet wide and used railroad rails and logs as riffles set parallel to the bottom (Frank Milbert 1980: personal communication). Sluice boxes were built so that they could telescope into one another, and when they were arranged in series, either supported above or lying directly upon the ground, this was called the

Fig. 6. Wooden sluice box riffles from the Bockmier cabin above Hoteling Creek in Gold Hill Mining District.

"string" (York 1939:44).

Placer gravels were worked upstream, and the best miners knew the value of considered disposal of their tailings (Frank Milbert 1980: personal communication). In using the sluice, as the upstream worked bank receded, boxes from the discharge end were brought to the head. Thus, it would not nave been necessary to move the entire string, and waste material was always deposited in worked ground. Poorly located tailings dumps were an additional problem because there is more surface area to the waste than the material has in situ. Sluices that ran out of grade were known to shoal rivers and close claims down because of the delta effect (Bowie 1887: 241-243).

Several men were required to work a sluice; "...some to strip sod, some to dig and wheel, one to throw out pebbles and boulders with a sluice fork and one to throw away tailings" (Trimble 1914:92). The importance of an understanding of the properties of inertia and the use of a sharp pick to undercut the gravel along bedrock was emphasized: "...a greenhorn has a short thick, stubbed pick; he stands on top like a chicken on a grain pile; gets out one rock and finds he has another below it..." (Virginia City Montana Post 29 April, 1865). Gravel was shoveled into the head box of the sluice. On the bottom of the head box a grizzly caught the coarsest gravel as the flow of water washed the finer material down the length of the sluice. The string was laid as straight as possible, and the incline varied from 2% to 15%, determined by experimentation according to the amount of water and cohesiveness of the matrix (Wilson 1898:24-31).

The variety in application of sluicing methods was limited only by individual ingenuity. Rockers were used in combination with sluices. A more compact sluice called a "long tom" used only two sections of boxes.

The Risdon Iron Company of San Francisco produced angle iron riffles which were professed to create deadwater under the angle to help save gold (Wilson 1898:34). Wear on box bottoms could be reduced by cladding the clear lumber frame with rough planks. One of the most widely adopted innovations in large sluice systems was the undercurrent. This was a very wide, shallow sluice designed to wash fine material using a much decreased velocity of water (Staley 1932:12,Fig. 10). It was fed via a grizzly near the end of the sluice, and the sandy material was washed in a thin layer over small riffles. The numerous small manuals on placering used by even the most experienced miners were replete with suggestions and parameters to be considered in handling large volumes of water and gravel in the usually rough-and-ready manner of the sluice box (von Wagenen 1897).

The use of a sluicing system required enormous volumes of water which could only be brought to bear with a further system of dams and ditches. But building canals, ditches, flumes, and impounding dams was a difficult business, requiring engineering skill, capital investment, and cooperative labor (Paul 1947:114). The richest and most accessible deposits in the Hoodoo district were the hillside, bench, and gulch placers along the western slope of the North Fork Palouse River. By and large, the drainages there contain some flowing water year around, but as indicated by their names, none contained enough to work placer deposits with sluices. Therefore, along with the earliest filings of claim notices, miners located water rights which specified sites for ditch lines and the amounts of water each would carry. Water flow was measured by the miners' inch, which was generally the amount of water flowing through a one inch square hole in a board six inches below the stream surface (Browne 1868: 184; Wilson 1898:64-68; Young 1970:122). Though the method of measurement

has varied from time to time and state to state, the current legal value in Idaho for one miners' inch is nine gallons per minute, equivalent to 50 miners' inches in one cubic foot per second (Palouse Ranger District, File 2540).

Ditches were the main structure used to collect and transport water to a miner's diggings (Browne 1867:16-17). Wooden flumes were built in rocky terrain or across deep canyons, but this alternative was expensive and seems to have been unnecessary in the Hoodoo district (Browne 1868:180). The construction of a ditch was a significant engineering feat since it involved great distances, slight yet steady grade, and uniform excavations. An ideal ditch was subject to little erosion, evaporation, and seepage while transporting a significant volume of water during all seasons of the year (Wilson 1898:45-46). It was located as high as possible but below the snowline to prevent blockages during the spring melt. All the small drainages along its length should add to the total volume carried, and waste gates were necessary to relieve potential flood conditions (Bowie 1887:135; Raymond 1873:406-410).

Several considerations were necessary in the actual construction of a ditch, as well. Engineering skill was required to survey the course of a ditch, which might have a grade of only 0.25%, or 12.2 feet per mile (Wilson 1898:45). It was recommended that the survey employ an aneroid barometer, and the course was to be leveled and staked (Bowie 1887:136). It was best excavated deep with steep sides instead of wide and flat. The main body was dug in solid soil, and the earth removed was piled up as part of the downslope bank. In the Palouse, this was especially important because the volcanic ash content of the soil reduced cohesion in the downslope bank. There was a story of how tough Adam Carrico saved a ditch

to his Gold Hill mines by throwing himself prone into a breach after the saturated volcanic ash soil had given way (Frank Milbert 1980:personal communication).

Ditches were dug using a team of horses to plow the course and turn the earth from the upper side to the lower embankment (Henshaw and Parker 1913:258-259). The Carricos used one or more teams in their mining operations and in both ditch and dam construction (Milbert n.d.:4). Trees were removed from the line of the ditch by undermining and completely uprooting them. Ditches were finished by hand, and the lower side was trodden upon until flattened and firm. Maintainance of the system was emphasized so that flooding the lower bank was prevented (von Wagenen 1897:56). This was so critical that in Alaska some ditches had been lined with canvas. Once water had been turned into the ditch, it could run full after the ground had been saturated.

Examples of ditches are contained in filings for water rights and give a good indication of intended uses. An 1865 filing in Nez Perce County stated the claimants would:

> ...turn the waters of Latow Creek from it [sic] natural course or bed into a ditch for mining purposes, commencing at any practicable point above its mouth and running the bank of the Snake River to any point or points where said water may be required for mining purposes. What I claim is all of said Latow Creek, leaving sufficient in the natural channel for the necessary purposes of the Indians living upon said creek during their stay upon said creek. When they shall vacate said stream I claim the right to turn all of said waters into the above described ditch for the above names [sic] purposes [Nez Perce County Mining Notices, Book P:66].

In the Hoodoo district, mining notices and water rights describe ditches ranging from 200 to 2500 miners' inches in capacity. Companies or associations were maintained to handle these interests (Nez Perce County Mining Notices, Book P:255). In the case of the system in White Pine

Gulch, a legal division of control was established in 1885 between B. H. and Charles Laughlin, C. C. Roberts, and George M. Wilson (Nez Perce County Water Rights, Section D, Book 1:18,24-27). An estimation of the value of ditches with 300 to 3000 miners' inches capacity (considered small by California standards) is available from the Boise Basin rushes. Ditches one mile to seven miles in length cost $10,000 to $30,000 to construct, and the water they transported cost 60¢ to 80¢ per inch per 24 hours to use (Browne 1868:520).

Dams were built for several purposes. Many were built as head dams, which served to collect water from a drainage and direct it into the ditch system. Some were built to create a storage reservoir to insure the water supply during the dry season. Distributing reservoirs needed dams located below the ditch system so that water could be used on individual claims for a few hours' or days' run (Bowie 1887:93-94). A retaining dam was also better for feeding penstock pipe, rather than to risk work stoppages and inconstant supply with feeds directly from ditches. "These are especially necessary where the water supply is from mountain streams which have a tendency to slack off in water during the summer months. The erection of a retaining dam for such reservoirs is part of the ditch system" (Wilson 1898:75). Finally, splash dams were built just above the diggings and had trip-release gates which would suddenly loose the accumulated water in a powerful flood onto ground prepared for sluicing.

By and large, the dams were of earthen construction, and it was recommended that they contain cribbed timber bases (Fig. 7)(Raymond 1873: 408). The cribbing was to be filled with stones, earth, gravel, and sand, and by turning the branches left on the timber to face upstream, future flood sediment could be caught to strengthen the dam. The dam was also

a

b

Fig. 7. Earthen placer dams. a, Dam A from Feature 22, 10-LT-31. Dashed line indicates top of dam, and silver hardhat at center indicates photo scale. b, Dam and ditch from Feature 36, 10-LT-31. Arrows indicate ditch and direction of flow. Dashed line indicates top of dam. "S" marks the inlet of a mined ground seep.

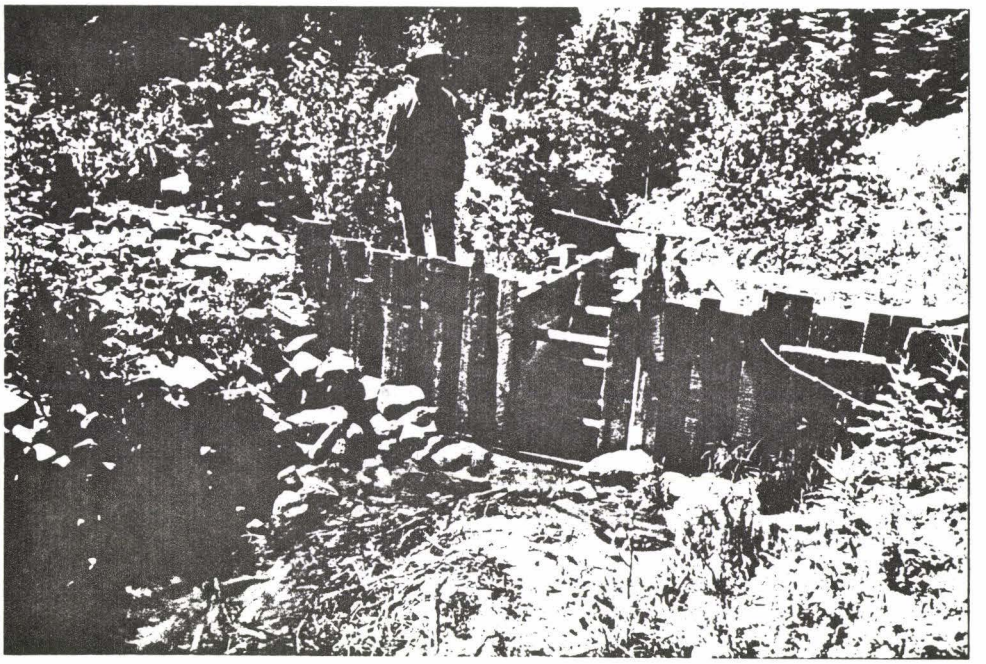
to be wider at the bottom, since the force from the reservoir would be directed downward and prevent it from slipping off its base (Wilson 1898: 75-80). Teams of horses and slipscrapers were employed in dam construction.

Splash dams required special construction of a gate which would overbalance once the reservoir reached a certain depth (Fig. 8). Depending on the size of the dam, the gate might be secured within the earthen wall or be part of a gabion-style wood-and-earth structure. An innovation on the latter form was used by Frank Milbert on the East Fork Gold Creek. It was a portable steel frame with spring-loaded gate, which insured a sudden release of water (Frank Milbert 1980:personal communication). Gates were constructed with the balance axis across the lower one-third. Some miners, however, preferred a trip mechanism which would allow them to control the timing of the release.

Dam sites were often predicated on the parameters for good reservoirs. Again, the proper elevation was below the snowline. The water supply was obtained from all available drainages and took especial advantage of those which concentrated the run-off from rain and snow. The character of the ground was considered relative to absorption and evaporation. "Steep and denuded slopes are always the best, as but little water will escape. The greatest slope will give the largest available quantity of water. Vegetation has high absorption" (Bowie 1887:92).

These hydraulic structures were used for all types of open cut placer mining, of which the most important in the Hoodoo district were ground sluicing and hydraulicking. Ground sluicing was a more controlled version of the ancient practice known as booming. A summary of this method as described by Pliny in Natural History was:

> When they have reached the head of the fall, at the very



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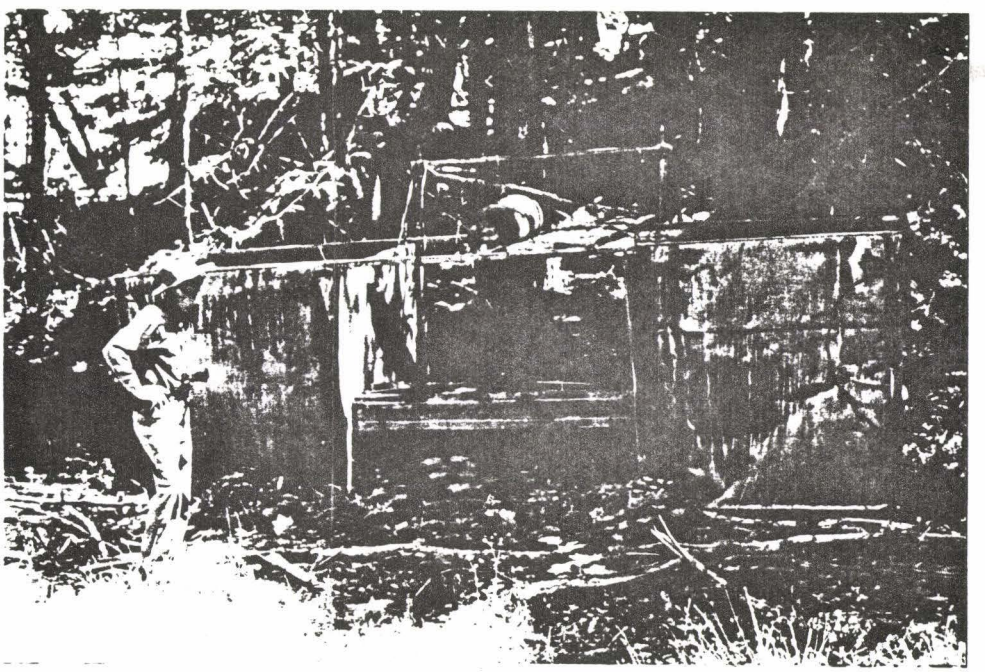

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Fig. 8. Contemporary splash dams. a, Wooden dam with earth ballast above the East Fork Gold Creek. When not in use, water flows under the partially opened gate. b, Portable splash dam made by Frank Milbert, standing at left. The gate is heavily weighted with five iron plates.

> brow of the mountain, reservoirs are hollowed out a couple of hundred feet in length and breadth, some ten feet in depth. In these reservoirs there are generally five sluices left, about three feet square, so that the moment the reservoir is filled the flood-gates are struck away, and the torrent bursts forth with such a degree of violence as to roll outward any fragments of rock which may obstruct its passage. When they have reached the level ground, too, there is still another labor that awaits them: trenches, known as 'agogæ,' have to be dug for the passage of the water, and these, at regular intervals, have a layer of silex placed at the bottom. This silex is a plant like the rosemary in appearance, rough and prickly, and well adapted for arresting any pieces of gold that may be carried along. The sides, too, are closed in with planks, and are supported by arches when carried over steep and preciptious spots. The earth, carried onwards by the stream, arrives at the sea at last, and thus is the shattered mountain washed away—causes which have greatly tended to extend the shores of Spain by these encroachments on the deep [Bowie 1887:82].

Ground sluicing was most useful on steep slopes. It could also be employed on bottomland, but this required careful design of foot dams and tail, or drain, races to prevent the downpour of water from reflecting off the tailings and back into the sluice (Wilson 1898:92). The sluice itself was cut into the bedrock, using heavy boulders as riffles, and advanced toward the worked bank as it receded. Periodically, the sluice was cleaned up, and the collected fine material was washed in a sluice box or rocker to obtain the gold. On level land, the ground was sometimes plowed before the water was turned on, and a horse-scraper moved the gravel into the sluices (Brooks 1913:287,Plate XIB). On slopes, the overburden was washed away after having been loosened by spading. A gully was then dug, and miners stood on the banks shoveling earth into the flow of water, gradually widening the worked area. In either case, the ground had to be first cleared of timber and brush.

Hydraulicking was the method of washing down a gravel bank with a high-pressure stream of water directed at the base (DeGroot 1894). It

was first used in California in 1853 to work Tertiary gravels in the central Sierra, and the subsequent industry inundated so much agricultural land with debris that the controversy raged on every level for 20 years (Bowie 1887:47-49; Gilbert 1917:104-107; Kelley 1954, 1956). The use of hydraulic giants and an arrastre on Gold Hill threatened the Cochrane farm on Garden Gulch, and he filed a damage suit to halt the miners (Bull 1945: 8; Utt, tape 1.1:30). In the Hoodoo district, the Steffens brothers obtained the giant once owned by the Carricos and used it to work their claim on the North Fork Palouse River above White Pine Gulch during the mid-1920s (Frank Milbert 1980;personal communication).

Hydraulic giant was the generic term which came to be used to describe the nozzles employed to direct water pressure against a gravel bank (Fig. 10) (Raymond 1873:416-418; Stumpf 1979:28-40; Wilson 1898:69-72). The water gained pressure under gravity fall in large diameter sheet iron pipes or conduits. The object was to undercut the gravels to create controlled cave-ins and wash the finer material into trenches leading to the sluices and undercurrents (Raymond 1873:Fig. 396a). Many times more efficient than any hand method, hydraulic operations could work gravels which paid only 3¢ or 4¢ per cubic yard (Kelley 1954:355).

Hydraulic pipe underwent some evolution, especially in California, before the versatility of riveted sheet iron or steel was universally recognized (Bowie 1887:49; Wilson 1898:53). It was made into lengths of 30 to 36 inches and diameters of 4 to 60 inches (Fig. 9). It could be transported by mules and assembled easily in stovepipe fashion (called a "slip joint")(Fig. 12)(Bowie 1887:162). It could be singly or doubly cold-riveted along its seam, and the interior was often treated with asphaltum or coal tar to retard corrosion. Jointed together in 20 to 30

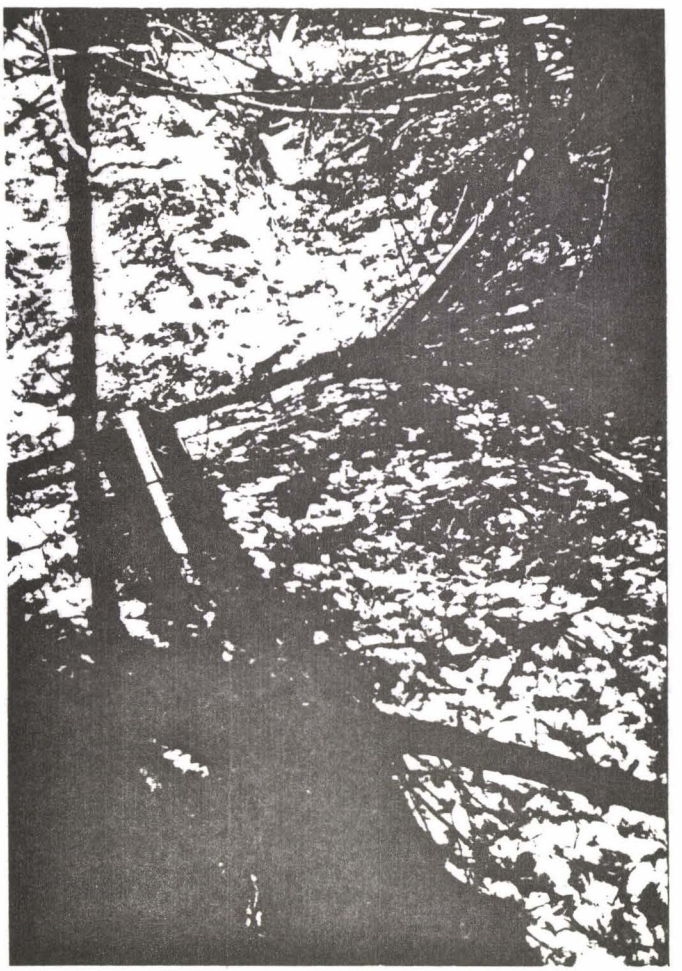
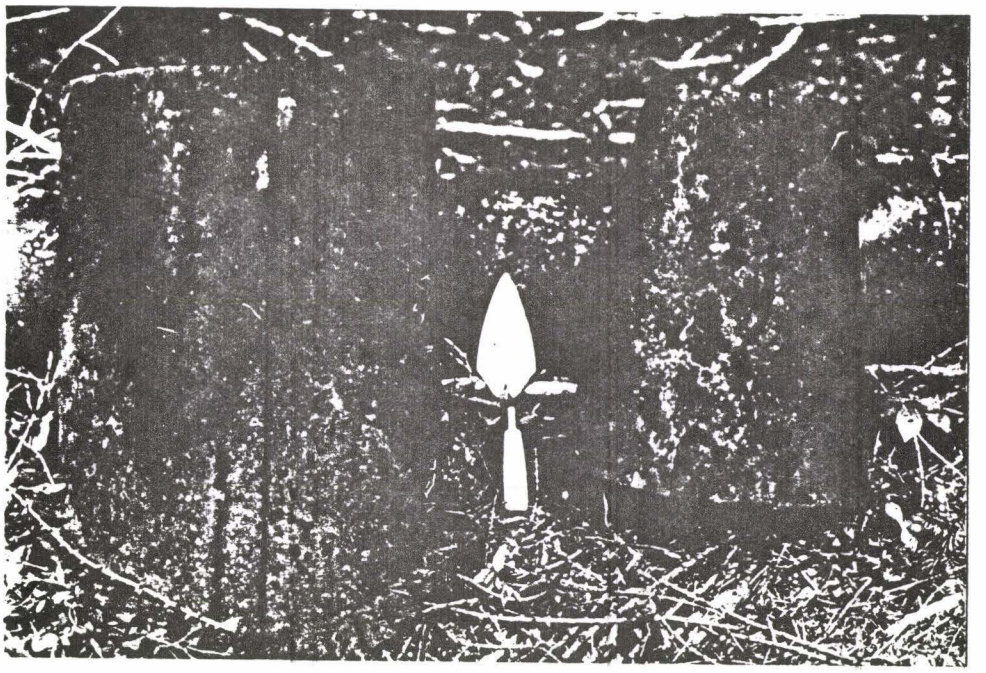


Fig. 9. Hydraulic pipe in Feature 31, 10-LT-31. Arrow points to a length of pipe in the ditch wall at the head of a ground sluice. Dashed line indicates top of ditch. The two other lengths of pipe are on the bank of the ground sluice.



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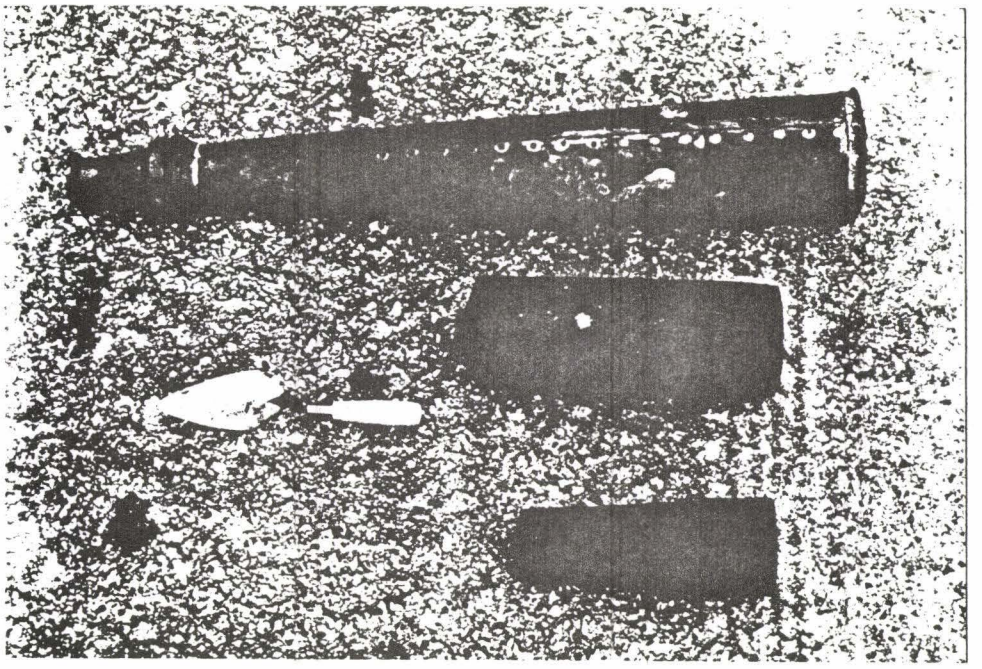

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Fig. 10. Parts of a hydraulic mining system. a, Sheet iron pipe from Feature 28, 10-LT-31. At left, a possible head pipe from a pressure box. At right, a possible collar for the nozzle attachment. At rear, single-riveted slip-jointed pipe. b, Top, hydraulic nozzle, and center, a possible mercury bottle; both from Gold Hill. Bottom, iron collar.

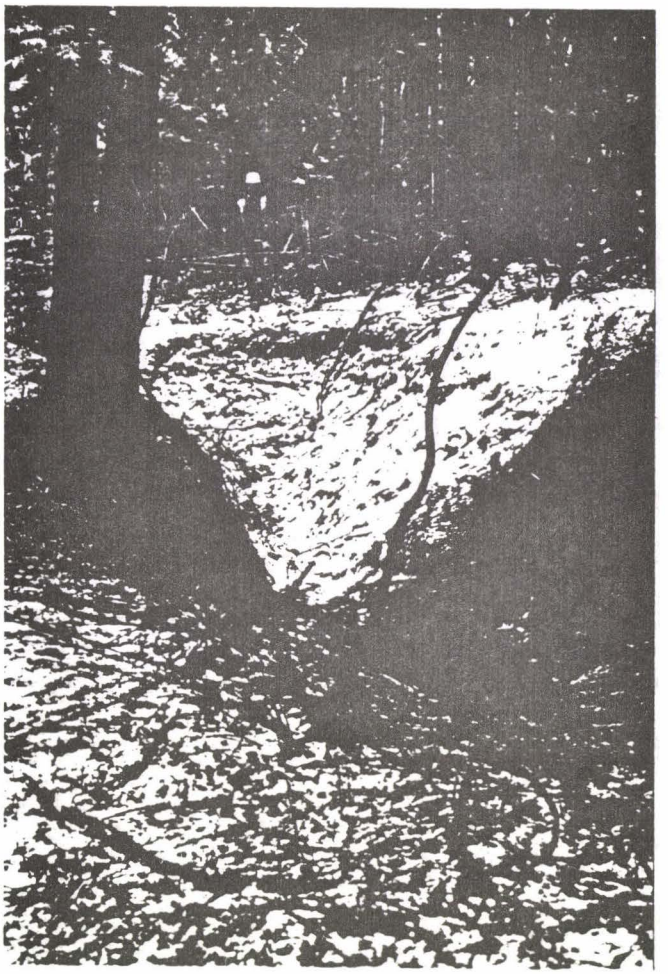
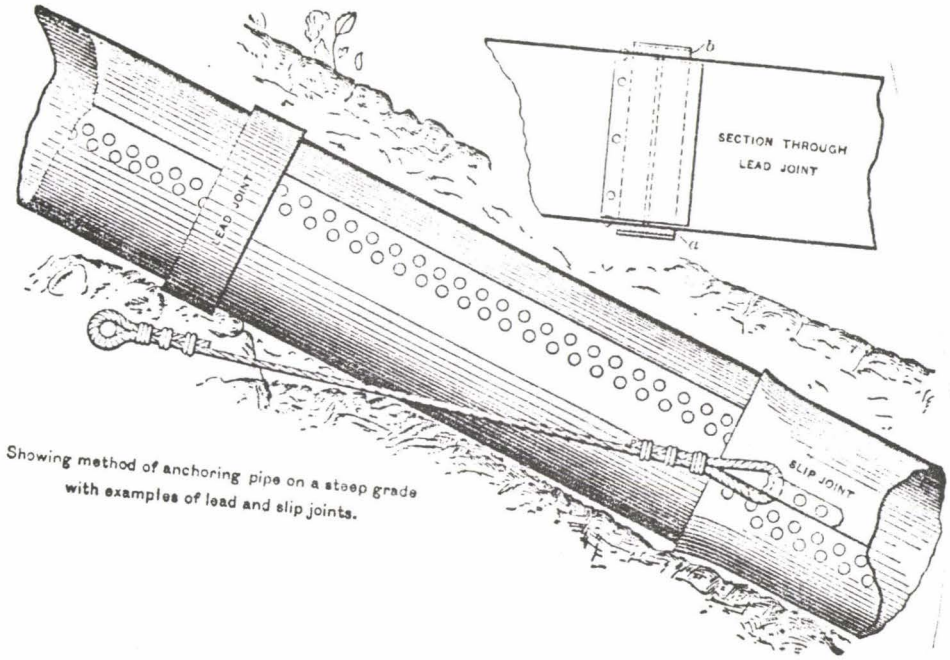


Fig. 11. Open pit prospect, Feature 26, 10-LT-31. Palouse District forester Dave Silvieus is standing next to the squared, compass-oriented discovery monument, which is an 8 in. diameter stump.



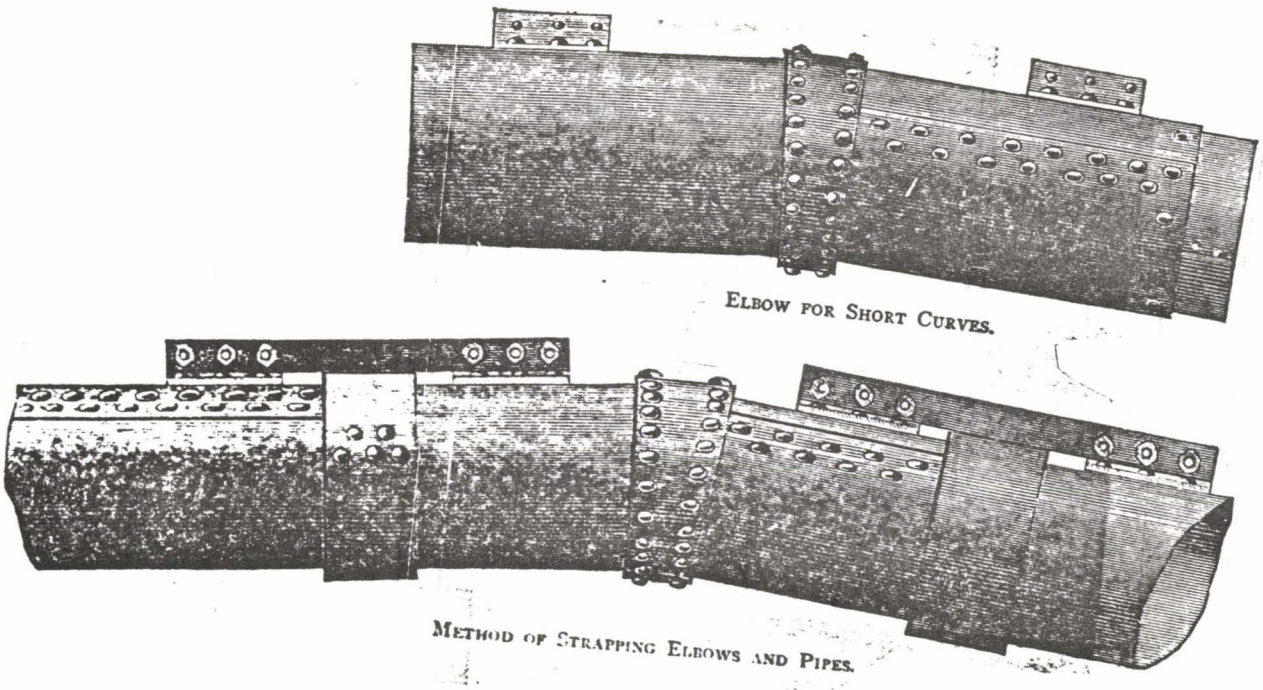


Fig. 12, Methods for securing hydraulic pipe. a, Anchoring and jointing systems (from Wilson 1898:57). b, Metal strapping for curves (from Bowie 1887:165).

ft. lengths and sealed with dirt or sawdust, an ordinary single-riveted pipe could withstand 200 pounds pressure and last 25 years. A slip joint was anchored on steep slopes using hook-shaped lugs on the pipe exteriors secured with wire cables. Greater stress on angle or pressure joints was handles by lead joints. With this type, a sheet metal sleeve was placed over the joint, and hot lead was poured into the connection (Fig. 12) (Wilson 1898:58).

This kind of pipe had several uses at a placer mine: as a distributing or discharge pipe, or in the pressure box at the head of the system (Fig. 13). It was normally not used instead of a ditch, except where a deep gully needed to be crossed or to supply a discharge point down a steep incline. Best results were obtained if the pipe was laid in the shortest, straightest course because friction caused a loss in "head". The head for a hydraulic system was an indication of the potential pressure, calculated from the perpendicular height of the water fall from entrance to discharge plus the water height above the entrance (Wilson 1898:59). It amounted to about ½ pound of pressure per foot of head.

Placer gravels could also be mined by tunneling. This method was called drifting or exploiting, and though there are several adits in the Hoodoo district, there is no evidence that any of these are the result of this type of mining. Drifting was done to reach ancient deep stream gravels, and the mined material was washed out, carted out, or cleaned in sluices built directly within the tunnels (Bowie 1887:82-83).

The most recent method for excavating placer gravels utilized a steam bucket or dragline. This was heavy equipment which simply loaded gravel onto an ore pile or into a gold washing plant. Frank Milbert at times contracted to perform this service (Milbert 1975:99-100). While he

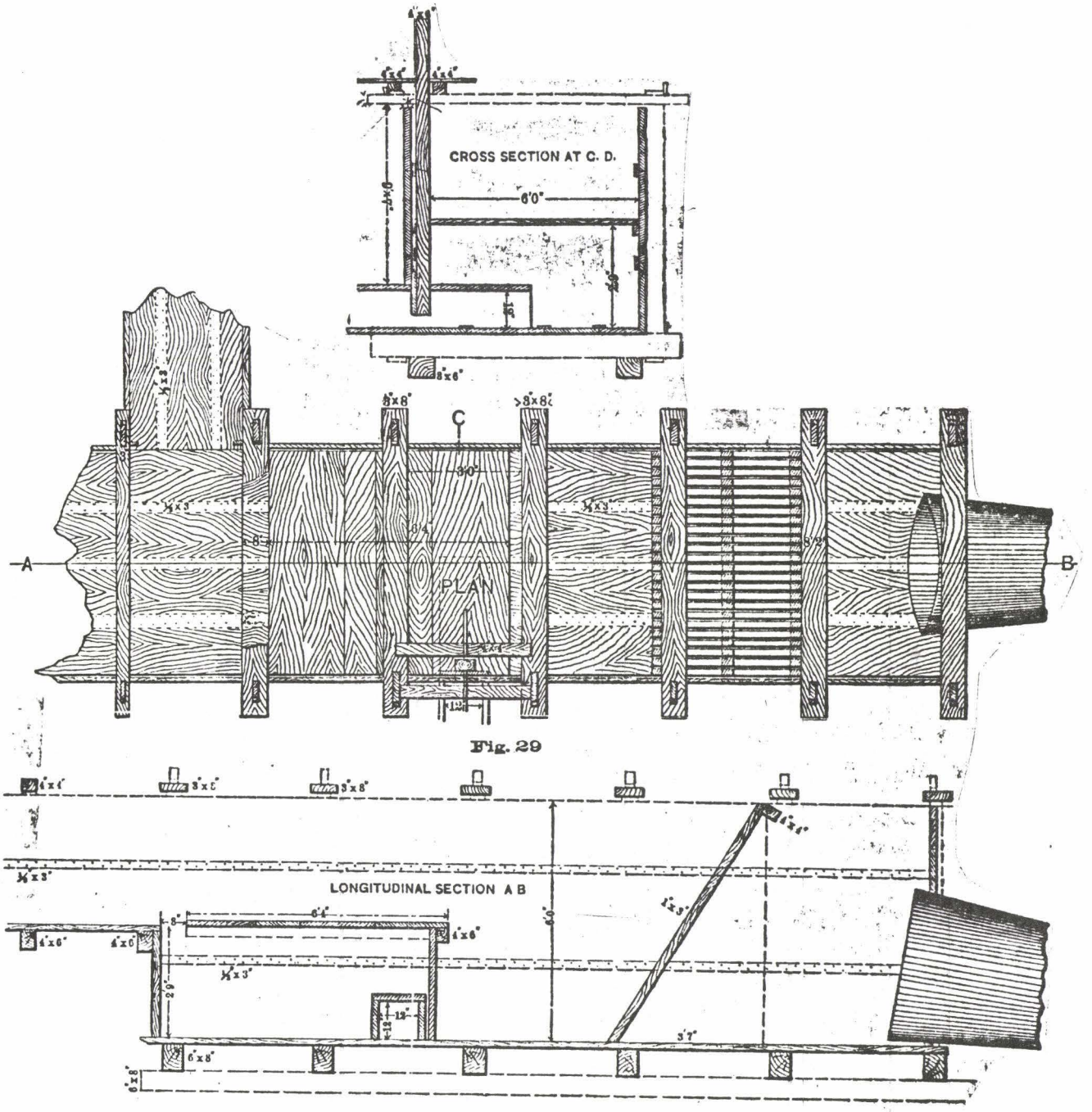


Fig. 13. Schematic drawing of a California pressure box (from Bowie 1887:176). Head pipe is located at B, at right.

was responsible for repair and electrical maintenance on Henry Behrens' dredge at the mouth of Poorman Creek about 1947, he observed that up Quartz Gulch there was an iron base plate for the gin pole of a "Bagley system" dragline. He had also seen a B2 Eire steam shovel with 3/4 yd. bucket, which was probably owned by Gene Wiesenthal and sold for scrap during World War II (Frank Milbert 1980:personal communication; Nichols, Herzog, and Gilder, tape 136.1, 89.1, and 68.2:14). Draglines were also being used on Pete Doffner's claims near the mouth of White Pine Gulch during the late 1930s and early 1940s (Abe McGregor Goff to Richard Waldbauer 4 August, 1980).

The final step in step placer mining was the clean-up. Periodically the miner cleaned whatever system of washing he was using to obtain the fine material, called concentrates, which held the particles of gold. It was done as frequently as possible, so as to save the maximum amount of gold and yet reduce the work stoppages to a minimum. Clean-up might be done with a pan, a rocker, or any other device; but it was a careful, more detailed job than sluicing the diggings. If mercury was used to amalgamate float or "rusty" gold, the retort process separated the minerals so that the mercury could be reused in the rocker or sluice. If ground sluices were catching the concentrates, the use of spoons to clean the surface of the bedrock was called "crevicing" (Wilson 1898:99). In general, clean-up was especially important because miners were aware of the quantities of gold their sluicing methods failed to recover, and quite often more color was obtained from reworked tailings than the miner took from the original claim. The losses were so great and widespread that the eminent mining engineer and Western observer J. Ross Browne noted, "The question arises whether it is not the duty of government to prevent, as far as may

be consistent with individual rights, this waste of a common heritage, in which not only ourselves but our posterity are interested" (Browne 1868:9).

The Hoodoo Mining District

The gold rushes of the mountain West created a unique social situation of densely populated compact communities sprung up in isolated, wild environments. Despite protestations to the contrary by weedy camp newspapermen, there was little disposition toward permanency. Yet the exploitation of mineral-cum-monetary wealth, in situations so intense that ten feet between claims often separated the starving rich from the starving poor, required the mediating agencies of complex institutional organization. The rush to California in 1849 began the evolution of the folk-moot organization called the mining district, which became an arena for both formal and informal social relationships. The body of mining law which was developed had its diverse origins in Roman and English civil law; Spanish, German, and Cornish mining experiences; and Iowan lead mines committee meetings (Paul 1947:210-214; Shinn 1885:39,44-45,122-128). Even 35 years later during the Coeur d'Alene rush of 1884, the adoption of a district code was paramount despite the relative proximity of Idaho territorial government and establishment of a federal mining law (Shinn 1884:45-46,61).

> While Congress was legislating for one set of conditions and officials journeying slowly over the plains, conventions and elections being held, legislatures gathering and county organizations being effected, the mining population might jump hundreds of miles in a week, fill a gulch with unorganized society, and create conditions imperatively demanding instant readjustment in the application of the focus of government [Trimble 1914:227].

In Latah County there were at least nine separate mining districts

formed during various periods, and in the north along the Palouse River there were the Gold Hill district (west Gold Hill and Gold Creek), the Blackfoot district (east Gold Hill and Jerome Creek), the Meadow Creek district, and the Hoodoo district. As in other areas of the West, districts formed and re-formed based upon the community's satisfaction with how internal problems were solved. Though the names of miners can be found associated with one of these districts more than others, men easily moved from district to district following the current excitements.

It was usual for the mining laws adopted in the district miners' meetings to be published in newspapers and county records (see Burcham [1958:374-375] for Oro Fino district laws recorded in Clearwater County Miners Records, Book A, 1868; Shinn [1884:61] for Coeur d'Alene district laws published in March 1884; and York [1939:112-116] for Florence district laws published in the Walla Walla Washington Statesman February 22, 1862). The only documentation which has been discovered for the Hoodoo Mining District, however, is the registration of its boundaries by its long-time deputy recorder, W. G. Connor, as follows:

> Hoodoo May 13" 1895
>
> Jay Woodworth Esq
> Dear Sir:
> Yours of the 4" inst at hand to-day, would say in reply the Hoodoo Mining District embraces all of the waters of Palouse River East of Strychnine Creek. inclusion. W. G. Connor
>
> Filed for record May 15th 1896 at 4:30 o'clock P. M. request of Jay Woodworth, Rec. Fees D. H. Jay Woodworth
> Recorder, Latah Cty, Idaho
>
> [Latah County Mining Notices, Book 2:469]

Though this kind of evidence is scarce (as mentioned, the whereabouts of the collection of books called the Hoodoo Mining Record, kept by the district recorders, is unknown), it reveals the authoritative role which

the Hoodoo district held in the official view of the duly constituted county government. (A systematic study of authority conflicts between bureaucracies and various camp organizations has been done by Janice Eleanor Nicholson [1973].) The following discussion of culture history presents further evidence of the structuring of social relations and changing nature of the placer mining district.

At the time of the earliest discoveries in the Hoodoo district, the image of a lone prospector and his mule was largely a myth (Trimble 1914: 87-89). The logistical preparation alone required groups ranging in size from five or six to as many as 50 men. Along with mining tools, their outfit contained a camp kettle, coffee pot, frying pan, tin cups, and knives; provisions of bacon, beans, self-rising flour, sugar, and coffee; and an armory of revolvers, rifles, and shotguns (Browne 1868:530; Hunt 1959:8). The larger parties which set out with some impression of the mineral potential at their destination had often organized in advance the methods of claim allocation, settlement of disputes, and district administration. They could thereby ensure for themselves the hoped-for success (Burcham 1958:32).

Until 1872, there was no uniform code for staking a placer claim on any of the unencumbered federal lands of the various territories. Territorial legislatures recognized the predominance of regulations established by mining districts (Shinn 1885:281-284). The local regulations were varied regarding the size of claims (being mostly dependent on the equalization of opportunity as a function of the richness of the goldfields), but they universally recognized the right to mineral lands based on the accomplishment of a minimum amount of development (also called the "prudent man rule"). As a result of pressure by mining

interests who wished to secure minerals titles for capital developments and concern in government over the erosion of federal dominion on public lands, the Congress passed the 1866 mining law. It stated that federal lands were open for exploration and occupation, and under certain circumstances mineral rights could be obtained (Lindley 1897:61-62). Importantly, it, too, recognized the self-regulation by miners in mining districts. This law provided the legal basis for resolution of the innumerable individual disputes which were brewing, and the ensuing judicial commotion pointed out weaknesses which were handled in the 1872 revision (Paul 1947:229-230, 234-235).

The 1872 law specified the amount of work necessary to hold a claim, the information which was to appear on every location notice, and the requirement that claims boundaries be clearly marked. Though affidavits attesting to the amount of work done, called the assessment, on claims in the Hoodoo district do not appear to have been filed at the county courthouse, one claim notice states:

> ...taking in the mouth of Quartz Gulch 20 rods up said Gulch and all other Gulches running into Poorman creek on either side the length of said claim with all cabins Timber and Water and I hereby certify that there has been work done on the same this 1886 to the amount of three hundred dollars and over [Nez Perce County Mining Notices, Book N:220].

The location notices themselves had a common form, though the precise wording varied, with a description of the claim and its boundaries followed by the testament of a witness that the claim had indeed been duly located. Claim boundaries were monumented in numerous ways, but the most frequent methods were to blaze trees or square a tall stump, oriented to the points of a compass, four to 12 inches in diameter and about five feet high (Fig. 11)(Latah County Mining Notices, Book 2:117, Book 3:612, Book

4:43,45). Boundary information was then written on the blazes or stump faces, and a copy of the location notice was appended to the discovery shaft monument, usually placed inside a tin tobacco can nailed to a tree. In 1902, the filed location notices began to reference township and range map coordinates and to rely less upon common landmark names.

After claims were staked and the business of mining begun, the establishment of a mining camp or town quickly occured. Two factors which helped define camps besides the notorious entertainments provided were the need for a place to accomplish district business and hold meetings and the dependence of miners upon supply entrepots. In addition to Hoodoo and Grizzle Camps already mentioned, there were other locations which received passing mention as congregating places in the Hoodoo district: Long Jim Lockridge's cabin at the mouth of Jerome Creek, the Havner store/boarding house on the North Fork Palouse River, the various cabins of the district mining recorders, Jake Johnson's halfway house at Woodfell (Schell 1973: 3,22,34), and a place referred to in two location notices by Oliver Hazard Perry Beagle with the unsavory title of Dogtown ("1½ miles S from Strickims Butts")(Latah County Mining Notices, Book 1:125,132). In 1888, John Banks leased his claim in Blaine Gulch to a Chinese, Sam Jon, along with the use of ditches, water rights, sluice boxes, a cabin, and a store (Nez Perce County Deeds, Book N:209). In 1913, the location was still known as the old store, though Blaine Gulch had become Banks Gulch (Latah County Mining Notices, Book 4:335-339).

Little is known about the early miners' meetings held in northern Latah County districts, but the Idaho Territory recognized their quasi-governmental functions. County recorders were required to appoint a deputy mining recorder at any necessary place or place with at least ten

locators (Strahorn 1881:85). If the county recorder failed to do so, the miners could elect one of their number to hold the office until such time as the appointment was made. Miners' meetings were still being held on Gold Hill in the 1930s and 1940s, but little in the way of formal business was transacted. Claim-jumpers, sluice-robbers, and sharp practices continued to receive judicial hearing, and claims were defended with firearms in theory if not in fact. The small, close-knit community gathered more frequently, however, to listen to "Death Valley Days" on Park Shattuck's radio and then swap news and stories (Milbert 1975:13).

The district mining recorder served at the behest of his peers and without salary. He did receive a portion of the claim notice filing fee (about $3), out of which he had to travel to the county courthouse to register the claims he had recorded. Abuses of the office most frequently occured in collecting fees and taxes from Chinese. Unprotected by public justice in the miners' meeting until lower wages drove most whites away, "The Chinese were a very important economic part of the mining advance, but not of it socially" (Trimble 1914:144). In Spokane County, Washington Territory, the tax of $1.50 per month on Chinese miners was a significant portion of public revenues and part of the strategy to annex Stevens County. So many illegal collections were made, however, that when the Chinese began to move away and revenues declined sharply, the levy was repealed in 1869 (Esvelt 1959:9-10).

> The old days were passing, and the loosely drawn limits of pioneer days would serve no longer for purposes of private ownership or public control. It had been a favorite sport of pioneer legislatures from the beginning to overhaul county boundaries, whenever any transient demand for such action arose [Abbott and Carver 1978:43].

In Idaho a tax was passed charging foreigners $5 per month, but its

wording was such that de facto it applied only to Chinese. "...the Chinese miners were forced to pay the exceptional tax and, moreover, were sometimes robbed by officials under the guise of 'watchmen' and 'collectors'" (Trimble 1914:45).

As to the second factor of miners' dependence upon supply entrepots, packers and settlers who handled miners' goods constituted the earliest Euro-american trade network in the Palouse. Generally, a freighter might use a large wagon with smaller trailers pulled by mules, often with much makeshift equipment to facilitate travel over unimproved trails (Burcham 1958:24). They might sell goods off the tailgate, but most sources state that Hoodoo miners sent orders to Lewiston or Walla Walla to be filled and delivered to some point in the upper Palouse valley. Homesteader Matthew Miller at Kennedy Ford stored supplies in his log warehouse until called for by the miners (Milbert n.d.:8-9). He acted as an agent for the miners, which was especially important to the Chinese, and was able to thereby avoid some of the discriminatory pricing tactics directed at them. Later, Hawkins' and Starner's stores at present-day Hampton catered to miners' needs (R. L. Polk & Co. 1905:75; Wheeler, tape 52:3,6).

Storekeepers and packers often handled trade to the mines in partnerships. The precise nature of any of these arrangements for shipping to the Hoodoo district is as yet unknown, but several kinds of ties seem likely. Both C. H. Farnsworth's and J. C. Northrup's livery stables ran freight lines and stages to the Hoodoo mines. J. G. Powers sent gold dust to Spokane from the Bank of Palouse City, where J. A. Starner, Daniel Preffer, Jesse Bishop, Ed Cheney, A. A. Kincaid, and Farnsworth also held depositor accounts (Bank of Palouse City 1888-1889:23,66,106,201,308,351, 352). Ankcorn Hardware in Palouse carried mining tools, and F. H. Ankcorn,

the proprietor, had interests with minerals speculators W. R. Belvail and W. H. Chalenor (Fig. 15). Correspondence between W. C. Wells, of ex-miner E. K. Parker's General Merchandise in Princeton, and J. P. Duke, Palouse businessman, called for greater cooperation in economic ventures (Palouse Businessmen's Association 24 February, 1911 and 1 March, 1911). This latter concern seems to have been sparked during the first hopeful announcements about development of the Mizpah copper mine:

> Some forty years ago placer gold was discovered along the creek bottoms in the district and during the next few years hundreds of thousands of dollars in gold dust was worked out, the greater part of this wealth finding its way into the coffers of Palouse merchants in exchange for supplies.
>
> Mining can be considered one of Palouse's sources of wealth at the present time, with the future promising great things [Palouse Republic 13 May, 1910:8].

Miners also bemoaned the inferior quality of goods they often received and for which they paid exorbitant prices (Burcham 1958:136). They blamed Eastern merchants for preying on the isolated camp market, which had no choice but to accept what was made available. The bulk shipments continued to plague local merchants as well, once mail order houses began to provide the main competition, and Montgomery Ward and Company and Sears, Roebuck and Company carried a line of miners' spades, sluice forks, and drain spades (Israel 1968:48; Palouse Republic 9 May, 1913).

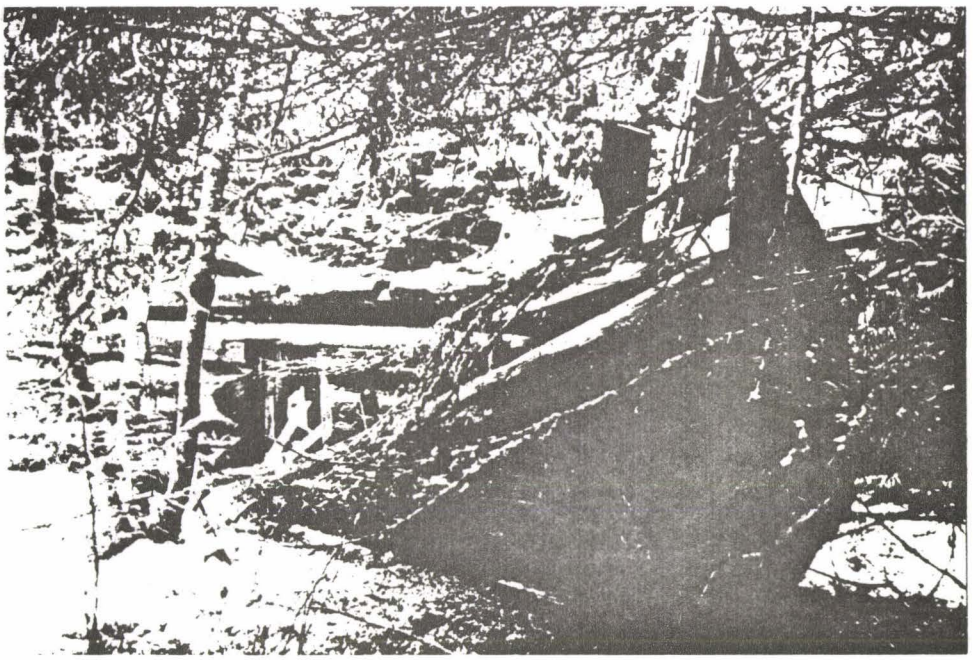
Early residents of the upper Palouse valley periodically made the 30-mile trip to Palouse City by wagon, buggy, or bicycle, and on foot or horseback. On these infrequent occasions many things were accomplished. Besides obtaining necessary clothing and provisions, there were also appointments with the dentist and days at the circus, as recalled from the youth of early Gold Hill residents (Kinman, tape 1, side 2, in 211-264,

457-496; Tribble, tape 1, side A, in 140-160). Travel also occured in the opposite direction, as settlers made excursions up the Palouse River to the Hoodoos to picnic, pick huckleberries, and exercise their curiosity during any of the gold excitements (Gilder, tapes 67.1 and 68.4:29; Hardt n.d.:2; Milbert 1975:24). Some miners paid the boys of homestead families to bring them groceries, cut wood, and do the annual assessment work on their claims (Gilder, tape 68.1:16-18).

Hoodoo miners relied more, however, on the packers who could bring supplies over the Hoodoo Trail. Though it probably had many versions, the best-known route came to be the one used by the best-known packer, Jake Johnson. It went from his halfway house and farm at Woodfell up Pup Creek, across the ridge to Excavation Gulch, down to Strychnine Creek, across Strychnine Ridge, and down into the Poorman Creek canyon (General Land Office map, T42N, R2W, B M , R. Bonser, Report 2053, 1899; Gilder, tape 68.3:5; Nichols, Herzog, and Gilder, tapes 136.1, 89.1, and 68.2:15). Typically, Johnson farmed less than one-third of his timber homestead, and for additional income packed miners' provisions with his three horses (Butterfield, tape 1, side A, in 100-170). Every two weeks, his freight system involved a two-day round-trip by wagon to Palouse, reloading the groceries onto the horses at Woodfell, and the one day trip to the mines. He continued to supply the miners after about 1905 using the newly constructed wagon road.

The lives of Hoodoo miners were seen as lonely, but that they liked it so. Some, living within a quarter mile of one another, visited only once a year. Some stayed many years, going there as young men and dying there. With independence as a central characteristic in their personalities, most were bachelors. In the resident population of about 20 along the

a



b

Fig. 14. Hoodoo district miners' cabins. a, John English homestead, 10-LT-15, at the mouth of Hoodoo Gulch. North Fork Palouse River and dredge tailings in the background. b, Quartz Gulch cabin, Feature 28, 10-LT-31.

Fig. 15. Interior of Ankcorn Hardware store, Palouse, Washington, date unknown. Standing at left, F. H. Ankcorn, and at right, W. R. Belvail. Note the variety of tools useful to a miner against the back wall: spades and shovels, a pick, a sluice fork, saws, and blocks and pulleys. The room in the rear was a tinsmith's shop (Roy Chatters 1980:personal communication).

North Fork Palouse River after 1910, only three were married: John English, Jack Connor, and Gene Wiesenthal (Gilder, tape 68.1:18).

The miners generally sought shelter in semi-subterranean lean-tos, about six feet by eight feet in size (Milbert 1975:11). These were made from split logs and had a fireplace of mud and rocks and a bed of piled brush. Some built more substantial log cabins (Fig. 14), like the Chinese above White Pine Gulch and "Old Duffney" (Sanderson, tape 167.3: 27,29). Along with bacon and beans, meals consisted of produce obtained from homesteaders' and Chinese truck gardens. Condensed milk was the most used canned food. Eggs could be preserved in paraffin or mineral oil if they were frequently turned so that the yolk didn't touch the shell. Lemons were kept in a glass jar and wiped off when "sweaty." There was no need for a mixing bowl, since flapjack batter could be mixed in the top of the flour sack (Milbert 1975:20-23). These simple needs thus required a miner's cabin to be only shelter from the elements and reduced to the minimum his critical dependence on expensive outside suppliers and exorbitant freight lines.

ARCHAEOLOGY OF THE HOODOO MINING DISTRICT

> It might be well to suggest at the start that the best way to begin a study of California mining is to buy a good guidebook and make a trip through the foothills of the Sierra Nevada [Paul 1947:353].

Methods and Techniques

The use of the Hoodoo Mining District as the unit for a regional survey of the historic placer mine area has the advantage of identifying archaeological remains in a geographical space coterminous with an identifiable social organization. As shown in the previous section, mining districts were generally based on the need for miners to have an authoritative system to set rules and maintain order with swiftness and convenience. It is also clear that the mining district had a complex relationship with the rest of the population of the Palouse River valley. Therefore, the fact that the collection of archaeological data is primarily related to the technology of placer mining is sharply underlined. Though Grizzle Camp was situated at the western end of the district, no large-scale remains of settlements were expected in the central area to be surveyed along the North Fork Palouse River.

The various types of placer mines (creek, gulch, bench, or hillside) are the loci of cultural activity to be identified as sites. Any individual mine can be assumed to have been worked by one or more men in association within restricted spatial bounds. Legally, this would have been generally rectangular areas that were their claims, crosscutting topographical features. For the purposes of the survey, however, these mines are defined as consistent with the topographical feature within which they are found. It is thus conceivable that a miner could have

worked both hillside and gulch placers on his claim, which would be more difficult to discover solely through archaeological data. This kind of exception is excluded from the site definition to permit analysis of features of specific mining techniques as specialized tasks.

Within each site, the goal of data collection is to provide information regarding the variations in placer mining activity. All activity related to any mine is recorded as a site: the mine, the cabin, trash pits, roads, privies. These various subdivisions of sites are recorded as features, and they are defined as structural remnants that seem to exhibit a specific functional relationship to the mine. Hence, a ditch, whose function was to transport water; a dam, whose function was to retain water; and tailings piles, whose function was to store waste, are features. The isolation of these features provides information on formal and spatial variability of specific structures and an indication of the elements in a type of mine.

The survey consisted of a walking reconnaissance of the district, concentrating on the drainage systems where most of the placer mining was historically known to have occured: the west slope of the North Fork Palouse River, Poorman Creek, and Strychnine Ridge (Fig. 20). The data collected were compiled on the cultural resource form of the Clearwater National Forest and submitted to the North Idaho Regional Archaeological Center at the University of Idaho (Appendix A). The original plans to use a plane table mapping system with Redy-Mapper © were discarded in favor of sketch maps referenced to United States Geological Survey quadrangle maps. The reason being that it was soon discovered that the complex federal and private ownerships in the district have resulted in

numerous marked boundaries, most frequently seen as red-painted blazes on trees. Often, the boundaries correspond to sections lines, and these, coupled with topographical reference points, provide suitable map coordinates. No subsurface testing was planned, primarily because the problem involves site identification, and secondarily because it was assumed that to establish the formal and spatial variability of the placer mines, excavation or augering were not necessary.

In addition to the adjunct information specified by each site record form, the collection of archaeological data was directed toward analyzing patterns of systematic placer exploitation. These data were to include location, size, and arrangement of tailings; location and arrangement of sluice ditches; height, width, and topographical location of dams; extent and arrangement of sluicings on ridge crests below ditches; habitational sites; and artifacts which can be associated with a particular placer technology.

Representative photographs of features were taken, emphasizing dams; ditch junction, inlets, and outlets; habitational structures such as cabins and lean-tos; diagnostic artifacts; and unique structures such as timbered adits, claim markers, and ridge cuts. The body of original slides and negatives are stored in the cultural resource files of the Clearwater National Forest, Orofino, Idaho (File 2361 Cultural Resources).

A hand compass was used to assist in completing sketch maps. A clinometer was used to establish the gradient of ditches; however, the shallowness of the incline of most ditches and the obstructed view caused by medium and high shrubs frequently prevented readings across a distance of more than 50 ft. This rendered most observations by hand-held instruments unreliable, and so more careful attention was paid to the

intersections of ditches with accurately mapped features. The changes in elevation could then be determined for much longer distances, and a judgment on direction of water flow would be more likely correct. Measurements of features were made using an English system tape. An increment borer was used to age-date trees, but by and large estimations of age were based on a general evaluation of trunk diameter (i.e. a grand fir of from .8 to 10 in. diameter was assumed to be about 50 years old).

Artifacts were recorded and generally left in situ. The few surface objects which were collected (i.e. diagnostic whole bottles or miners' spades) are described on the appropriate site form. Each was labelled with the particular feature and site number. They are stored at the Palouse Ranger District and are awaiting removal to the Laboratory of Anthropology at the University of Idaho after completion of a curation agreement with the Clearwater National Forest.

Intensive Field Survey

The walking reconnaissance was an attempt to locate all the significant features of any particular placer mine based upon the assumption that no important Hoodoo mine was worked without the use of water. Therefore, features were assumed to be connected and associated where remnant evidence of the re-direction of water flow could be discovered. Surveys began usually at the mouths or headwaters of creeks and gulches and proceeded to follow the drainage system; rather than having been designed to accomplish a percentage of coverage within a demarcated area through, say, transects. Exceptions to this method were the surveys of hillside placers, which could be clearly located using aerial photographs taken in 1933. These sites were reached by following

ditch lines and recorded from the highest toward the lowest elevations.

The walkover generally allowed visual coverage of the ground surface in a corridor 50 ft. wide. Heavier forested areas were accompanied by lower kinds of shrubbery, and the relatively clear slopes above gulch bottoms could be assessed for greater distances. Where large, dense brush fields occured, the perimeters usually gave good indication as to whether mining features were located within them. By walking both natural drainages and the ditch systems, correlations regarding intervening slopes could be made and apparent inconsistencies could be investigated for additional data. Where structural evidence was vague or deep mining had obliterated structures in the gulch bottoms, the walkover ranged up and down the sideslopes.

Roads, trails, ditches, and ground sluices were usually observed to circumscribe all the significant features. This fact coupled with pre-survey evaluation of 1933 and 1976 aerial photographs seemed to provide sufficient basis for designating areas to be covered. In addition, many areas less likely to contain placer mining remnants were covered after the end of the planned surveys while walking out of the forest. In this way, all the small unnamed gulches between Hoodoo Gulch and Beagle Gulch, on either side of White Pine Gulch, in sections 15 and 16 along Poorman Creek, between Poorman Creek and the Palouse River forks, and along the east fork of Poorman Creek in section 10 were surveyed. Most of these areas contained some evidence of placer mining, but unless they are recorded in the appropriate site record form, the features observed were not considered significant and the result of systematic exploitation.

The only features which occured in such profusion as to defy recording within this millenium were prospect pits. Subjective

assessments of their populations appear on the sketch maps. Those that were recorded generally measured at least 5 x 5 x 4 ft. deep, since a legally recognized discovery shaft usually required a 100 $ft.^2$ excavation. By implication, that size prospect pit can serve as a gauge for the minimum effort necessary to explore the gold-bearing potential of gravels. Besides the ubiquity of the pits, the difficulty in differentiating them from the depressions caused by downed trees also mitigated against a time-consuming effort to record them.

Three major drainages along the North Fork Palouse River were not surveyed within the available field seasons (1979 and 1980). The first is California Gulch, one of the four historically significant gulches along the western slopes. It was given a low priority because much of it lies in the private property of Burlington Northern Industries, Inc. and Potlatch Forests, Inc., and recent large clearcutting operations have left considerable downfall which prevents surface inspection. The second and third are Moscow and Eldorado Gulches. Examination of mining notice records shows that work there probably belongs to the fourth historical period of the Hoodoo district, and the surveys had not progressed that far before time ran out. A large hillside placer, visible in 1933 aerial photographs and observed during surveys, between California Gulch and White Pine Gulch was also not recorded due to the lack of time.

The Sites and Features

10-LT-13, White Pine hillside placers:

This area may have been historically known as "China Hill", and in an effort to record precise relationships, the Redy-Mapper was used to draw a scale map of the complex system. The mine consists of two sections

on the southeast side of the ridge crest. Water came through a deep cut in the crest via a west slope ditch fed from White Pine Gulch. The ditch line approximates the ridge crest. There are two major earthen dams, which regulate flow above and below the southern section, and four minor dams, which retain water within the northern section. The remains of a cabin are located southwest of the northern section, but no surface evidence of Chinese occupation was discovered.

10-LT-14, White Pine Gulch placers:

White Pine Gulch is one of the most extensively mined drainages in the district. There are two tiers of ditches and numerous ground sluices, especially along the western slopes. There are two large earthen dams, 150 ft. long and 50 ft. long, which traverse the wide, level gulch bottom. The wide alluvial fan, in addition to having been mined, may have been the site for habitations, as implied by several trash pits.

10-LT-23, Mountain Gulch Group:

This site covers the historic patent of the Mountain Gulch Mining and Milling Company. Though heavily damaged during logging, foundation remnants of the mill and boarding house were located. A Huntington roller quartz mill and other equipment were at the mill site. Two timbered adits, tailings, and iron mining cart tracks were situated just north of the mill.

10-LT-24, Mountain Gulch placers:

There appears to be a series of varied mining operations in this section of the gulch. Some dry-laid rock shoring of the gulch was done, there is one timbered adit, a well-built log cabin is at the lower end, and a large bunkhouse-type log building is located at the mouth of a side drainage. The entire length of the main gulch has been sluiced.

10-LT-25, Hoodoo Gulch placers:

Though recreational mining is still being done at the gulch mouth, and there are large ground sluices all along its west slope, the major aspects of Hoodoo Gulch mining are the two adits and two habitational structures just below the main ditch. A graded road runs up the west slope to the mines.

10-LT-26, Sowbelly Gulch placers:

Four earthen dams are located on this short, steep drainage, with the lower one situated on the final breakslope. There appears to be an excavation for a large lean-to at the gulch mouth. All the workings are located below the main ditch.

10-LT-27, Greenhorn Gulch placers:

The entire length of the gulch exhibits some evidence of placering, with the workings being most extensive along the mid-section. A large dam, 70 ft. long, the sill logs of a cabin, the sources of two ditches, and several large ground sluices characterize this area. The gulch as a whole feeds three tiers of ditches on the east slope and the large ditch on the west slope, which terminates in Linn Gulch.

10-LT-28, Palouse Forks placers

This site is a complex of a bench placer, a large ground sluice, and two gulch placers all in close association. They are all fed by the main ditch, which is itself regulated by a 60 ft. long earthen dam. Several subsidiary ditches connect the upper portions of the bench placer and the west gulch placer. The west gulch placer is divided into two channels by tailings. Its upper earthen dam is a unique horseshoe shape, which allows water to be retained in a reservoir and the gulch to flow by the east end.

10-LT-30, Mountain Gulch mine:

At the upper forks of Mountain Gulch, this complex of log buildings is associated with a timbered adit and tailings pile. The central structure is a trebly-segmented gabled rectangle, 16x46 ft. Both forks of the gulch appear to have been placer mined above this site.

10-LT-31, Quartz Gulch placers:

This is also one of the most extensive placer mines, with all forks of the gulch having been mined with water fed from the ditch on the west slope of the Poorman divide. Its mouth was mined with a dragline, as evidenced by the engine platform and a discarded bucket, measuring 2x2x4 ft. long. The upper sections were hydraulicked. A large, well-built cabin and extensive workings are located on the south fork, while at a breakslope on the main branch there are three earthen dams for water control.

10-LT-34, Banks Gulch placers:

The gulch contains large tailings piles of well-washed material. The ditches appear to have been designed mostly for bench placers at the foot of the western slope of the North Fork Palouse River. There is a house foundation at the gulch mouth, and at the head of the gulch is a fragile feature of upright poles which may be the remains of a scaffold of the kind used to move logs without the help of horses (Miller 1972:25).

10-LT-35, Cleveland Gulch placers:

Again, there are well washed tailings and several small ditch systems along the lower reaches of the gulch. The three earthen dams all appear to have been used for feeding the ditches. An excavated lean-to foundation is located near the gulch mouth. No artifactual evidence of Chinese occupation was discovered.

10-LT-36, Beagle Gulch placers:

There was some working of the mouth and most of the length of Beagle Gulch. However, the most significant mining was done at the head of the gulch and on a hillside placer to the east just below the main ditch. The hillside placer is divided into three sections, and the drain races culminate in a ground sluice at the foot of the slope.

10-LT-39, White Pine Gulch cabin:

This cabin is located at the edge of the dredge tailings and near the hand-workings at the gulch mouth. It is semi-subterranean and built from logs. To the east is a considerable trash scatter consisting partly of a steam boiler, hydraulic cylinder, and various kinds of rubber gaskets. Of the many dim recollections as to who lived here, the clearest seems to be that it belonged to Dr. D. C. Livingston of the University of Idaho, who was an interested prospector (Goff 1980:personal communication).

10-LT-60, Rocky Gulch placers:

The gulch is steep and worked along its entire length. Its two earthen dams are in the upper half of the drainage, with the eastern dam located on the constricted breakslope.

10-LT-61, Strychnine cabin:

This site has been badly damaged by logging operations, but remnants of trash pits and the cabin foundation can be discerned. No object that might have been associated with Chinese miners was observed.

The second portion of this summary characterizes the types of features identified as constituents of the placer mining technology in the Hoodoo Mining District. It serves to demonstrate the variety in form and spatial relationships of structures.

Ditches

Perhaps the most striking features of the Hoodoo district are the ditch systems. When those who have observed these systems characterize them as being "all over these hills," by and large it refers to the great lengths of individual ditches which traverse several drainages. In the survey, no ditch was followed along its entire length, but the mapped portions through the various mines provided reference points from which the intervening routes could be interpolated. The ditches were shown to range from a few dozens of feet to two and three miles in length, such as Features 5 and 10, 10-LT-14 and Feature 21, 10-LT-31. The corresponding depths and widths vary from very shallow (about 1 ft deep) to narrow and deep (5 ft wide by 3 ft deep), though short ditches may sometimes be of considerable volume, such as Features 2 and 8, 10-LT-34, on the alluvium of the North Fork Palouse River.

The largest and most complex systems are located on both faces of the Poorman divide between Poorman Creek and the North Fork Palouse River. Each drainage on the west slope of the North Fork valley is crossed by one main ditch. An extreme of 400 ft. elevation separates a ditch with its source in White Pine Gulch (Feature 5, 10-LT-14) and another with its source in Greenhorn Gulch (Feature 7, 10-LT-27). Where ridges at lower elevations interpose a reverse slope, deep cuts across the crest allow the ditches to be recurved (i.e. Feature 3, 10-LT-13 and Feature 14, 10-LT-27).

The sources of ditches may or may not be in a reservoir. The larger, main ditches most frequently were fed behind or immediately in front of earthen dams. Fig. 16 shows a small dam, but the typical relationship between dam and ditch is well illustrated. Otherwise, the ditch simply

a

b

Fig. 16. Aspects of ditch construction. a, Earthen dam and ditch source, Feature 9, 10-LT-36. Dashed line indicates top of dam, right arrow points to ditch source, and left arrow indicates direction of flow. b, Dry-laid rock repair of ditch wall, Feature 9, 10-LT-14.

takes off from the gulch bottom and proceeds around the slope, with no indication of how the water flow was redirected. Gradients on all sizes of ditches which transported water along slopes were less than 5%, with the only observed exception being Feature 14, 10-LT-28, where the decline was as much as 12%. The ditches which fed hillside placers or ground sluices ran directly down the slopes and are both narrow and shallow (usually about 1 ft. deep).

Ground sluices were fed water directly from breaches in the ditches, as is shown by Feature 31, 10-LT-31 (Fig. 9). This can also be seen where there is a series of ground sluices, such as Feature 13, 10-LT-14, and where rechanneling was required, such as Features 10, 11, and 12, 10-LT-28. It is by no means certain, however, that all the washed gulches below ditches were intentionally mined, since spring run-off and erosion may have caused failures in ditch walls after the mines were abandoned. The most likely method of repairing the breaches was with the use of dry-laid rock shoring and earth, an example of which is found in Feature 9, 10-LT-14 (Fig. 16). Crossings of drainages may have been accomplished in the same manner, since invariably there is an uninterrupted downslope wall at those points (e.g., Feature 5 and 7, 10-LT-36).

Finally, the ditch system contained in 10-LT-31, the Quartz Gulch placers, is especially significant for variety of forms and functions. The main water supply was provided by a large ditch, above which there are no placer diggings and only one open cut (Feature 26, Fig. 11). It fed three regulating reservoirs. Subsidiary ditches carried water both straight downslope and along slopes to ground sluices and gulch placers. Short ditches were used to rechannel the gulch across its various forks (Features 16, 22, and 24), and alongside the main channels. At the mouth

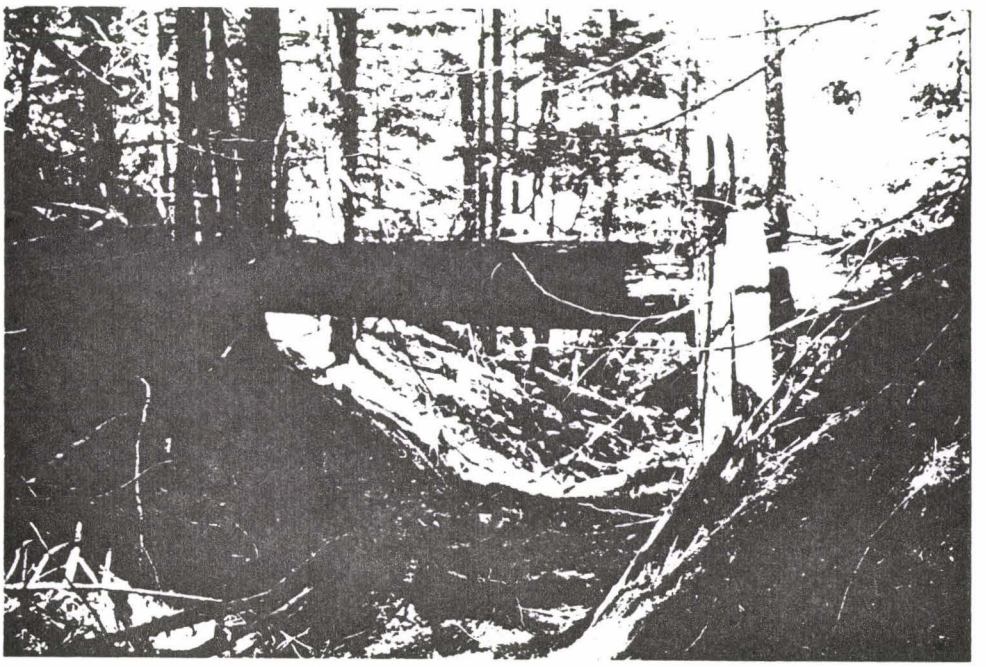
of the gulch, ditches were employed to wash the alluvial fan and transport water along the foot of the slope to a point upstream for the creek placers of Poorman Creek (Features 12 and 13).

Dams

All the dams observed in the surveys were earthen, with only two clear exceptions (Figs. 7 and 17). The first exception was Feature 33, 10-LT-31, which seemed to have consisted of split cedar dam boards nailed to a fallen tree. The second was the recent recreationist's dam, Feature 4, 10-LT-25, built with three horizontally-laid logs. The best indications as to the methods for construction of the earthen dams could be found where creek flows had caused erosion. While no positive evidence of cribbing foundations was found, many appeared to have been built over logs laid across the creeks and braced against stumps. Most had some method of gate control, as implied by vertical cuts through the heights of the dams. In one case, Feature 27, 10-LT-31, the sides of the gate were clad with split cedar posts laid horizontally.

Three distinct aspects of dam locations were noted. Breakslopes, constricted points, and the most level portions of drainages were frequently selected. The first two characteristics are in the location of Feature 3, 10-LT-60, where unusual schist outcrops dramatically narrow Rocky Gulch. Much of the upper portion of Quartz Gulch passes through deeply sedimented, gently descending glades. At Feature 22, 10-LT-31, the slope beings to change, and beyond the dam the terrain is more typical of a mountain creek. Dams at this third type of location tend to be very long, ranging from 60 ft. to 150 ft., but not necessarily among the highest.

There was an apparently wide range of functions for these dams, given the variety in forms and locations. At the heads of gulches are dams



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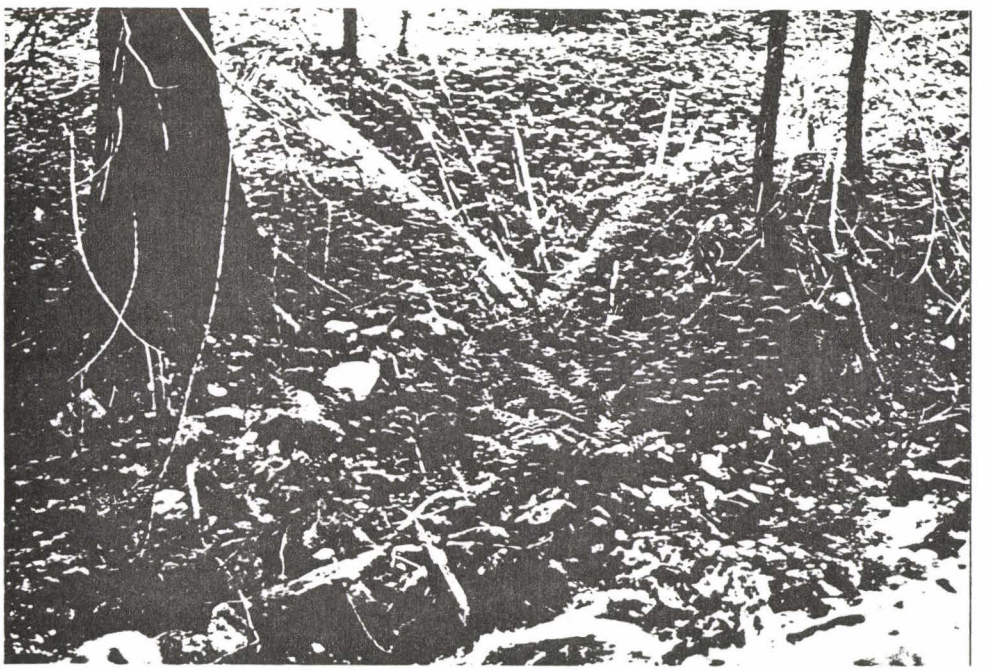


b

Fig. 17. Placer mining structures. a, Dam with split cedar dam boards, Feature 33, 10-LT-31. b, Open pit prospect with rock-lined channel, Feature 1, 10-LT-14.

without gates which may have been used to collect ground seepage (i.e. Feature 4, 10-LT-13; Features 1 and 2, 10-LT-26). The dams on level terrain appear to have held collection reservoirs, while the breakslope dams may have been primarily designed for flood control and booming. The dam at Feature 13, 10-LT-28 even appears to have been an additional control for ditch water feeding the bench and gulch placers and ground sluices beyond. The downslope edges of hillside placers, like 10-LT-13, are frequently built up, and this coupled with the perpendicular arrangement of the tailings behind them may mean that the portions being worked were kept awash.

Tailings

Large, well-washed windrowed tailings were observed in 10-LT-13, a hillside placer; Feature 12, 10-LT-14, White Pine Gulch; the unnamed gulch of 10-LT-28 at the Palouse Forks; 10-LT-34, Banks Gulch; and 10-LT-36, Cleveland Gulch. The dredge tailings along the North Fork Palouse River are also distinctly windrowed because of the lateral swing of the stacker, which conveyed waste out of the sluice. Most of the other gulches are simply washed free of overburden, with gravel waste accumulated in less regular and more dispersed piles.

Ground sluices

Ground sluicing was used on both slopes and level terrain. In some instances, slopes were washed to a depth of 4 or 5 ft., and many rechannelings of water were made (i.e. Feature 6, 10-LT-25; Feature 6, 10-LT-27; Feature 12, 10-LT-28; and Features 22 and 34, 10-LT-31). In other circumstances, considerable distances along slopes were cleared of overburden, as can be seen in Feature 13, 10-LT-14. On the flats, wide areas were flooded in the manner of the lower reaches of White Pine

Gulch.

Other kinds of prospects include open pits and excavations around the bases of overturned snags, such as Feature 18, 10-LT-31. It is not clear whether the cribbed excavations in Hoodoo Gulch (Features 2 and 14, 10-LT-25) and Banks Gulch (Feature 3, 10-LT-34) are prospects or cisterns (Fig. 18).

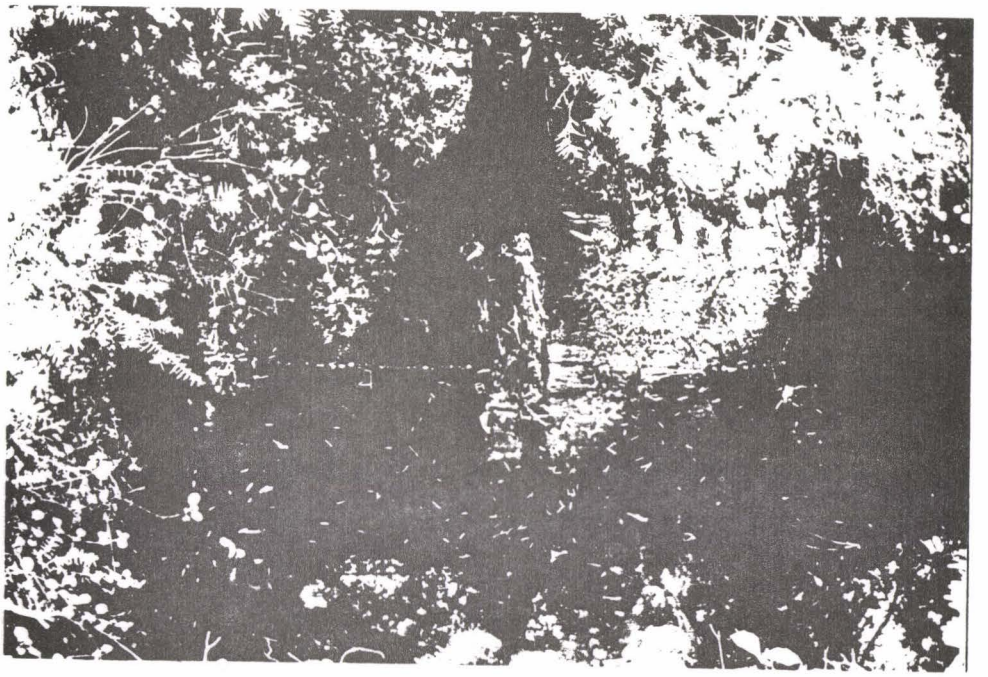
Habitational and related structures

Both semi-subterranean lean-tos and leveled earth foundation log cabins were observed in the Hoodoo district. The largest and most complex log buildings are associated with the major lode mining efforts in Mountain Gulch, sites 10-LT-23, 10-LT-24, and 10-LT-30. Privies, trash pits, and woodpiles all attest to the long-term occupation of these sites. The only comparable complex is located at the head of Hoodoo Gulch, where the adit, a shaft, and several placers were worked by miners occupying two log buildings. Isolated log cabins are associated with some of the largest placer mines, such as Feature 1, 10-LT-13; Feature 6, 10-LT-27; 10-LT-39; and Feature 28, 10-LT-31. Only the latter is associated with a frame privy.

Lean-tos were at least equally as frequent as cabins but always much smaller (Feature 6, 10-LT-26; Feature 16, 10-LT-31; Feature 1, 10-LT-35; and Feature 6, 10-LT-36). In the Cleveland Gulch and Quartz Gulch structures the rear walls were lined with split logs. If all the examples had had flat roofs, the interior space would have been only about 4 to 5 ft. high.

Artifacts

Diagnostic artifacts which assist in identification and dating of features are listed in the site record forms, but it is useful to



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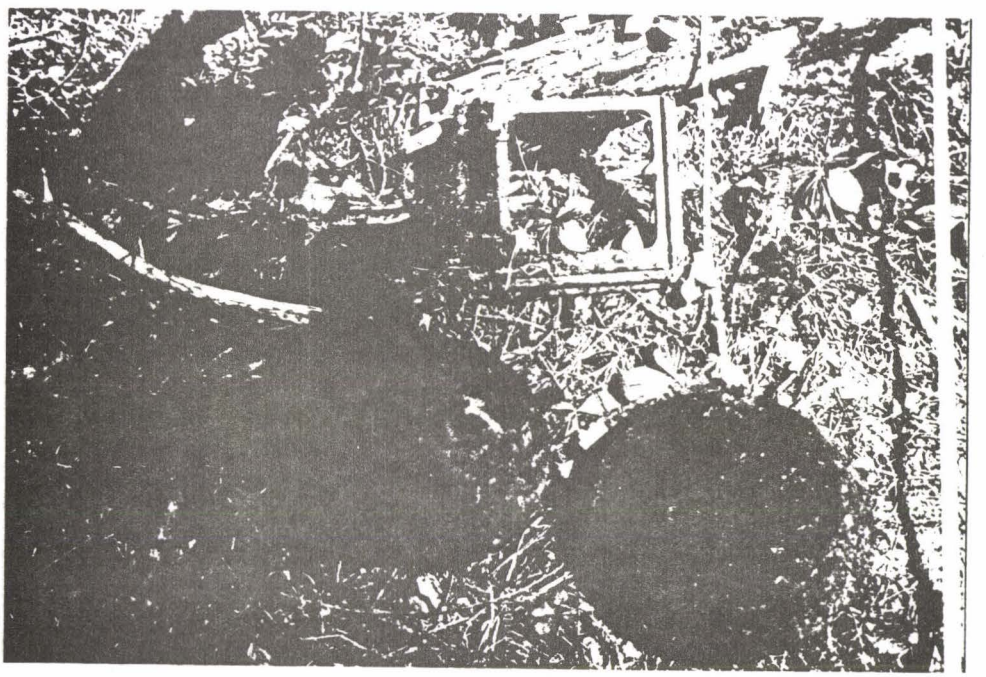

b

Fig. 18. Aspects of placer mining. a, Rectangular, cribbed pit, Feature 3, 10-LT-34. b, Artifacts associated with Feature 16, 10-LT-31. Clockwise from top right: molded, clear glass condiment bottle, pressed metal skillet, spade with riveted shank, rectangular crimped-end cannister, and cast iron stove part.

summarize here some of the kinds of associations (Fig. 18). Hydraulic pipe, spades, and sheet metal, with soldered-end and crimped-end tin cans and cast iron stove parts around habitational features, constituted the typical collections of metal artifacts. Square nails were observed in the log walls of Feature 1, 10-LT-13 and Feature 6, 10-LT-27. A dragline bucket is associated with Feature 14, 10-LT-31. Glass artifacts were much less frequent, and dateable objects were found only in those features that appeared undisturbed. Of the wooden artifacts, a recent example of a rocker was found in 10-LT-60, and several kinds of claims boundary blazes and monuments were recorded. The most informative might be what appears be a portion of sluice box (the only one found) protruding from the debris at the base of the ground sluice in Feature 34, 10-LT-31.

Lastly, an excellent terminus ante quem is available for the cabin in Feature 28 at the head of Quartz Gulch. Behind a fallen rafter are sheltered fragments of miner's wallpaper—the Spokane Review dated 1905 and 1906.

CONCLUSIONS

Perhaps the most important conclusion to be gained from this survey is that a unique aspect of placer mining technology is preserved in the Hoodoo Mining District. Given that the gold resources were never sufficient to attract major external capital investments, individual mines and small associations conducted most of the placering operations. Except for the dredging of the North Fork Palouse River bottom in 1939-1942 and Poorman Creek later, massive earth-moving systems using hydraulic giants or draglines were not employed on a large scale over most of the previously exploited areas in the district. The increased local investments characteristic of the third historical period described above tended to bring more people, but these arrivals continued to use hand methods. The remnants of this stage of the technology were consequently not washed away. Therefore, the archaeological record is primarily reflective of a developing economy which required ingenuity in cooperation by individuals.

Additionally, the variation within sites in feature form and spatial arrangement indicates that there was a considerable expertise to be gained between the use of a rocker and sluice box and the hydraulicking methods. Knowledge of the motive force of water, alluvial gravels, and engineering planning are aspects of placer technology on the scale practiced in the Hoodoo district. The archaeological record is then an important bridge between the documented events in the district and the numerous manuals describing placering methods. Since the survey used a regional approach, the full spectrum of structural variability shows how complex the actually employed methods were and provides the basis for comparison with

other placer mining areas.

Further conclusions can be made regarding some of the general questions posed in the beginning. It seems likely that many of the remains along the historic western slope of the North Fork Palouse River are the result of activity in the second historical period when local investors seriously developed their mining interests. Since sites in that area appear relatively intact, the experience they gained possibly influenced the next stage of development on virgin ground elsewhere, epitomized by the Taylor brothers' mines on Mountain Gulch. Future surveys of Moscow and Eldorado gulches will provide valuable comparative data, since explorations of this area intensified in the third period and were a focal point for Depression miners.

Most sources agree that the Chinese miners worked their ground more efficiently than the whites. The historical record implies that in the Hoodoo district the concentrations of Chinese mining were in Banks, Cleveland, and White Pine gulches and on China Hill above White Pine Gulch. Since no artifact attributable to the Chinese was discovered during the archaeological survey, and similar placer mining structures were observed throughout the district, there seems to be no reason to ascribe the construction of water ditches to Chinese methods. Perhaps the only way to identify the results of historic Chinese placer mining is in the occurence of regular, well-washed, hand-picked tailings. This is also misleading, however, because advancing a string of sluices upstream could produce similar configurations of mining waste. Archaeological sampling excavations will be necessary to obtain full answers to these questions. Whatever the case, the historical record and oral tradition demonstrate the significance of the role of Chinese miners in the Hoodoo district.

Obviously these are partial answers to the general questions posed, as might be expected from an inventorying survey. The regional design has produced a resource from which more clearly stated problems can be investigated. For instance, the temporal dimension, especially regarding activity within the second historical period, can be tested in sampling excavations of selected relevant sites. On another level, this regional survey can provide comparison for the other local mining districts. Although it is clear that it cannot substitute for inventory, identification surveys in those areas, the Hoodoo survey can be used to define small-scale problems for investigation. This is important when cultural resource management decisions as to site significance and usefulness for scientific research need to be made quickly and efficiently.

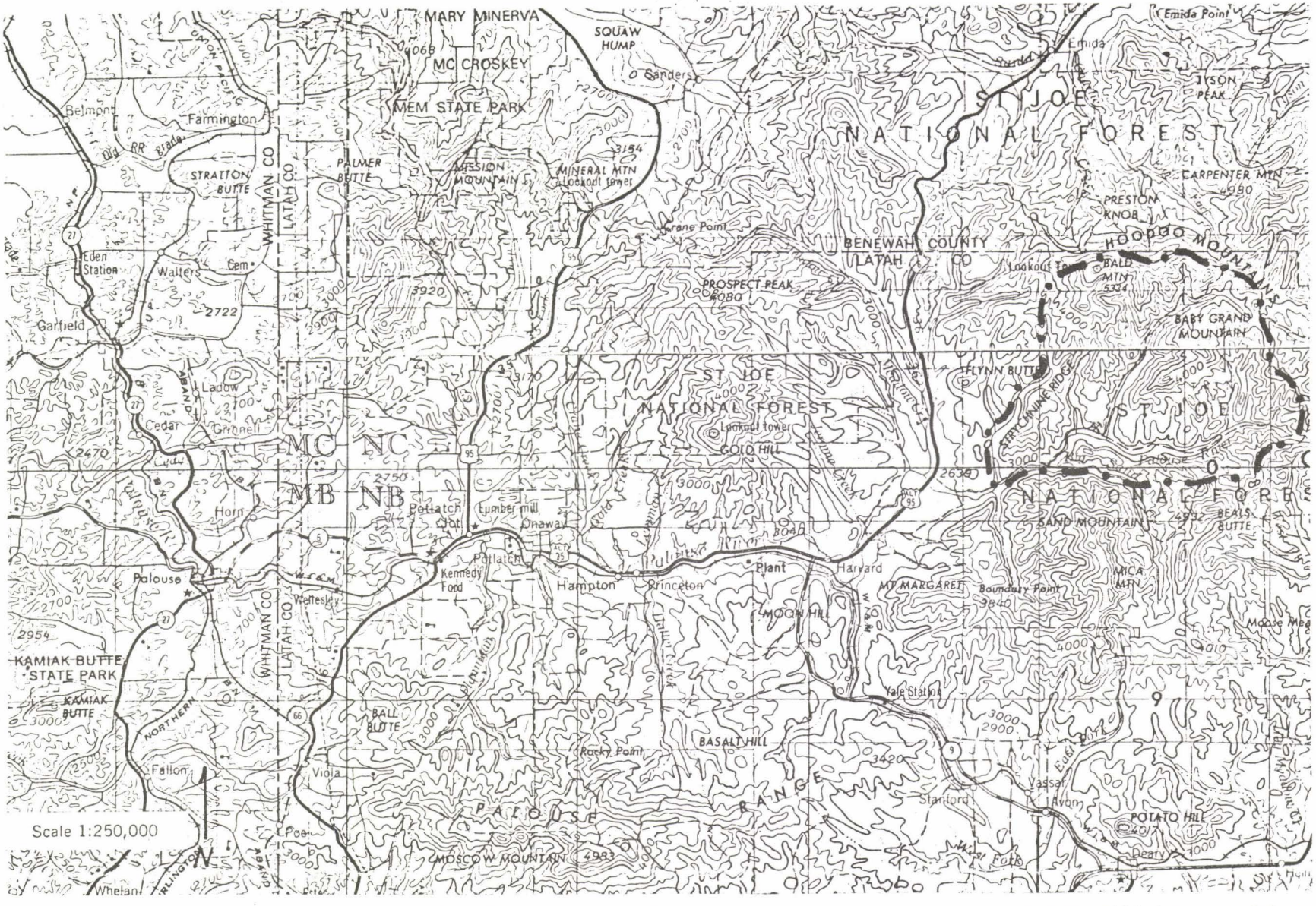

Fig. 19. Map of the Hoodoo Mining District and Palouse River valley. Base maps are USGS topographic sheets, Spokane NL 11-2 and Pullman NL 11-5 (1974). Dashed/dot line indicates district boundary 1895 (p. 84).

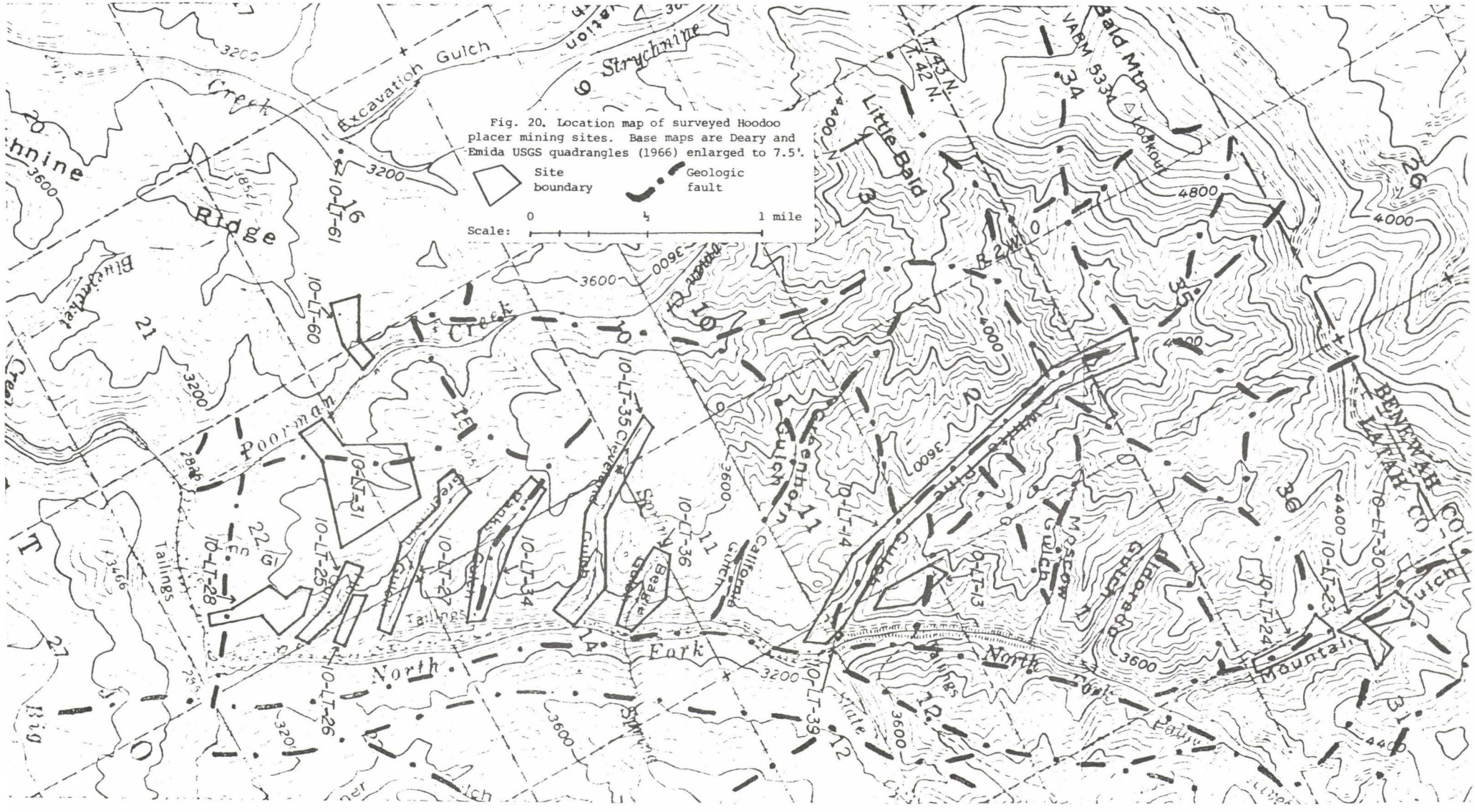

Fig. 20. Location map of surveyed Hoodoo placer mining sites. Base maps are Deary and Emida USGS quadrangles (1966) enlarged to 7.5'.

Site boundary

Geologic fault

Scale: 0 ½ 1 mile

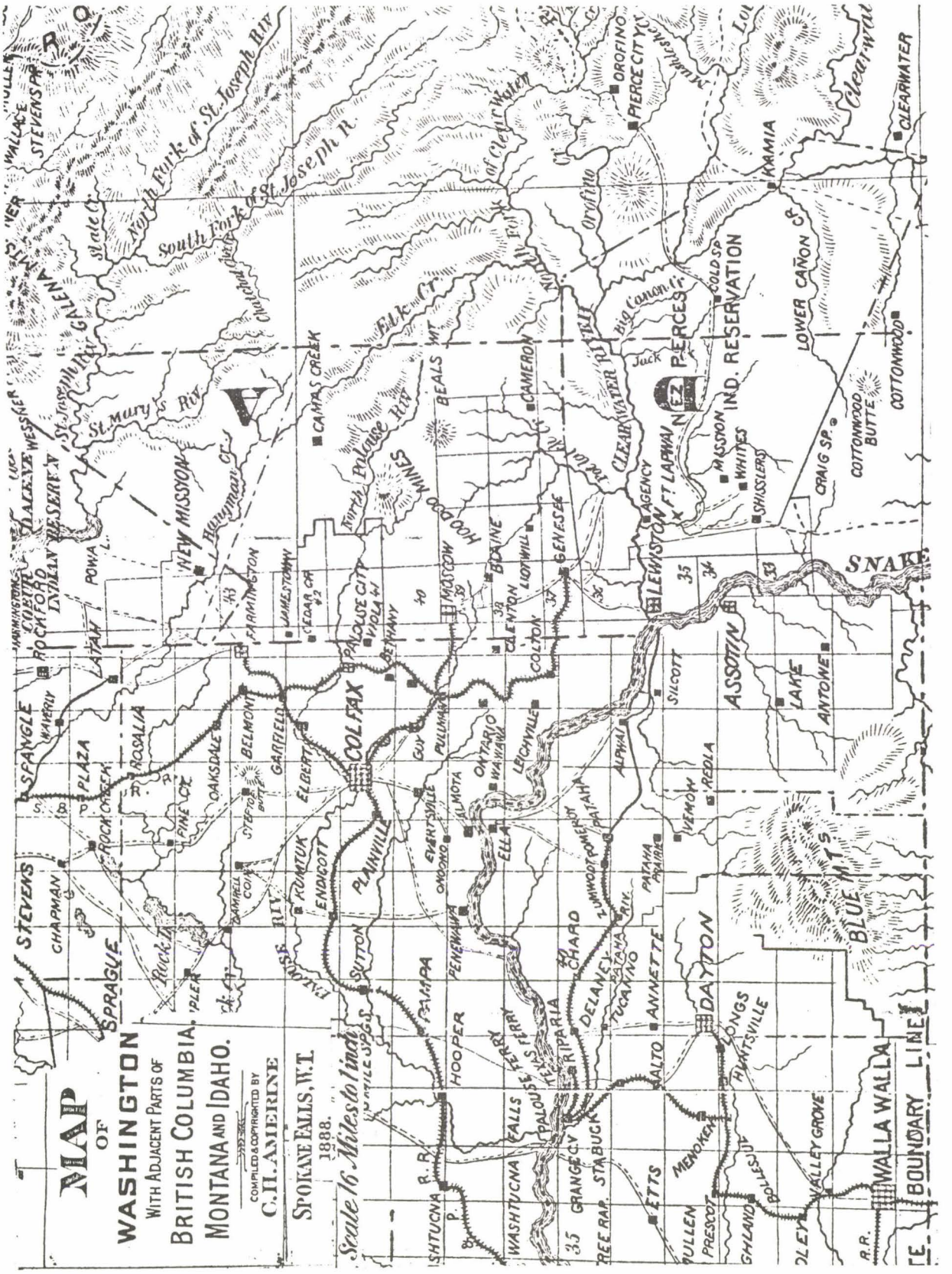

Fig. 21. Portion of Amerine Mining Districts of the Northwest map, 1888.

GLOSSARY

Many general works on placer mining history and technology include comprehensive glossaries, and so the following list is intended to be an immediate aid for terms used in this thesis. It is drawn primarily from A Glossary of Mining Terms (Luecke, Power, and Rock n.d.) and Western Mining (Young 1970:293-317), both of which append further bibliographical information. Other terms defined had specific use in the Hoodoo district, as stated in the text.

adit: A mostly horizontal passage driven from the surface for the working of a mine. An adit has only one opening, as distinguished from a tunnel.

amalgam: An alloy of mercury with gold or another metal. In the case of placer gold, a "dry" amalgam, one from which all excess mercury has been removed by squeezing through chamois leather will contain nearly equal proportions of gold and mercury.

arrastre: A circular mill for grinding quartz by trituration between stones attached loosely to cross arms.

assay: To determine the amount of metal contained in an ore.

assessment work: Annual work done upon an unpatented mining claim necessary for the maintenance of the possessory title.

bench placer: Gravel deposits in ancient stream channels and flood plains which stand from 50 to several hundred feet above the present streams.

cribbing: Close timbering, as the lining of a shaft. In placer work, cribbing may be needed to support the walls of shaft or test pit put down in loose or wet ground.

drag: The finer, heavier sands left in the pan after each swirl of water and gravel.

drift: A sub-tunnel run from the main tunnel to prospect for the pay lead or block out the ground to facilitate its working.

float: Small and thin particles of gold which have not been transported far from the vein source.

grizzly: A grating, usually iron, which serves as a heavy-duty screen to prevent large rocks or boulders from entering a sluice or other recovery equipment.

ground sluicing: A mining method in which the gravel is excavated by water not under pressure. A natural or artificial water channel is used to start the operation and while a stream of water is directed through the channel or cut, the adjacent gravel banks are brought

down by picking at the base of the bank and by directing the water flow as to undercut the bank and aid in its caving. Sluice boxes may or may not be used. Where not used, the gold is allowed to accumulate on the bedrock awaiting subsequent clean-up. A substantial water flow and bedrock grade are necessary.

hillside placer: A group of gravel deposits intermediate between the creek and bench placers. Their bedrock is slightly above the creek bed, and the surface topography shows no indication of benching.

hornspoon: A shallow, oblong vessel, at one time made from a section of ox horn but now made of metal. Used to test small samples of gold-bearing material by washing, in a manner similar to panning.

hydraulic mining: A method of mining in which a bank of gold bearing earth or gravel is washed away by a powerful jet of water and carried into sluices, where the gold separates from the earth by its specific gravity.

location: A validly registered mining claim which has been shown to contain a valuable mineral deposit.

ore: Metallic minerals in concentrations that can be worked at a profit.

penstock: A conduit or pipe for conducting water; or a gate for regulating water flow.

race: In placer mining, a narrow watercourse used to direct a strong flow of water; especially as the drain or tail races at the foot of ground sluices.

rocker: A short, sluice-like trough fitted with transverse curved supports, permitting it to be rocked from side to side, and provided with a shallow hopper at its upper end.

sluice box: An elongated wooden or metal trough, equipped with riffles, through which alluvial material is washed to recover its gold or other heavy minerals.

stamps: Machinery for crushing ore with the presence of water and heavy iron blocks.

stope: An excavation from which ore has been taken in a series of steps. Usually applied to highly inclined or vertical veins.

washings: The ore undergoes occasionally two or three washings; the first process being that of washing the slime and earthy particles from the rougher and larger stones of ore.

waste: Valueless material such as barren gravel or overburden. Sometimes used interchangeably with "tailings", as material regarded as too poor to be treated further.

whim: A horse-powered machine for raising ores.

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